

## Appendix A

### RF Test Data for BT V4.1 (BDR/EDR) (Conducted Measurement)

Product Name: Wireless earbuds

Trade Mark: PrimeAudio

Test Model: PAEB1004-ASST

#### Environmental Conditions

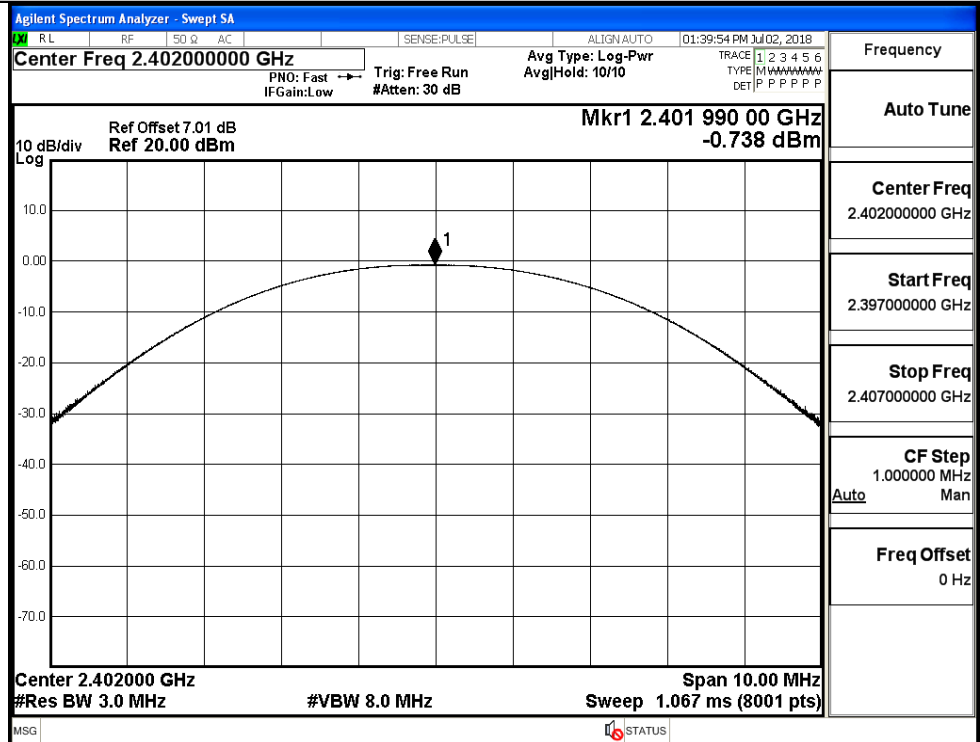
|                    |             |
|--------------------|-------------|
| Temperature:       | 23.2 ° C    |
| Relative Humidity: | 53.5%       |
| ATM Pressure:      | 100.0 kPa   |
| Test Engineer:     | Ryan.Hu     |
| Supervised by:     | Jayden.Zhuo |

#### A.1 Maximum Conducted Peak Output Power

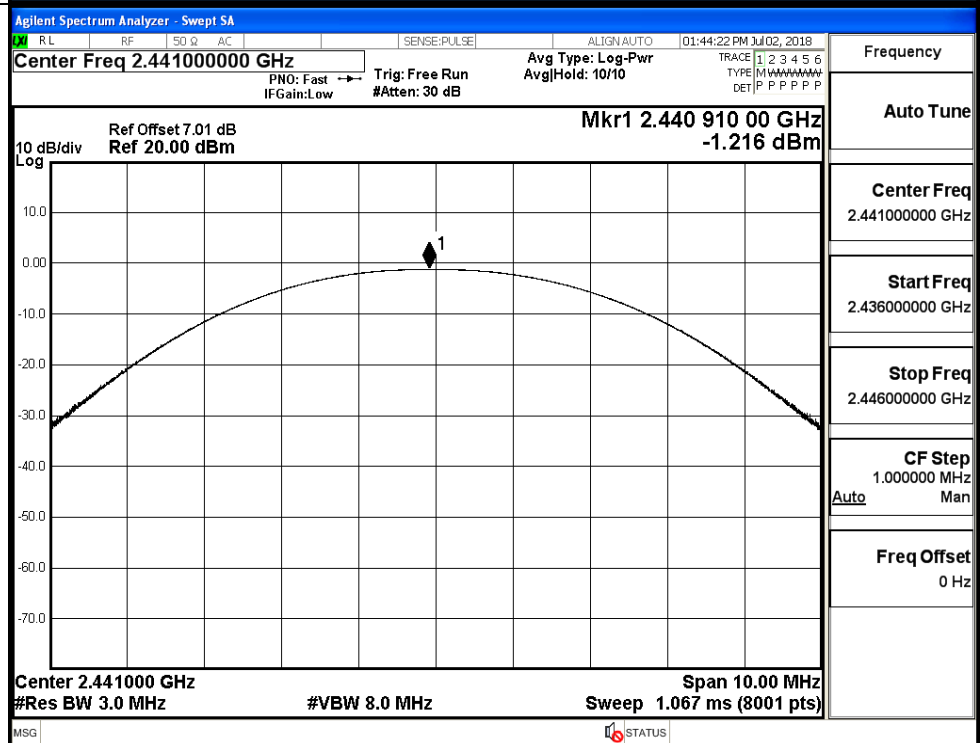
| Mode          | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------|----------|---------------------------------|-------------|---------|
| GFSK          | LCH      | -0.738                          | 30          | PASS    |
|               | MCH      | -1.216                          | 30          | PASS    |
|               | HCH      | -1.105                          | 30          | PASS    |
| $\pi/4$ DQPSK | LCH      | -1.458                          | 21          | PASS    |
|               | MCH      | -1.648                          | 21          | PASS    |
|               | HCH      | -1.332                          | 21          | PASS    |
| 8DPSK         | LCH      | -1.004                          | 21          | PASS    |
|               | MCH      | -1.142                          | 21          | PASS    |
|               | HCH      | -0.755                          | 21          | PASS    |

# Test Graphs

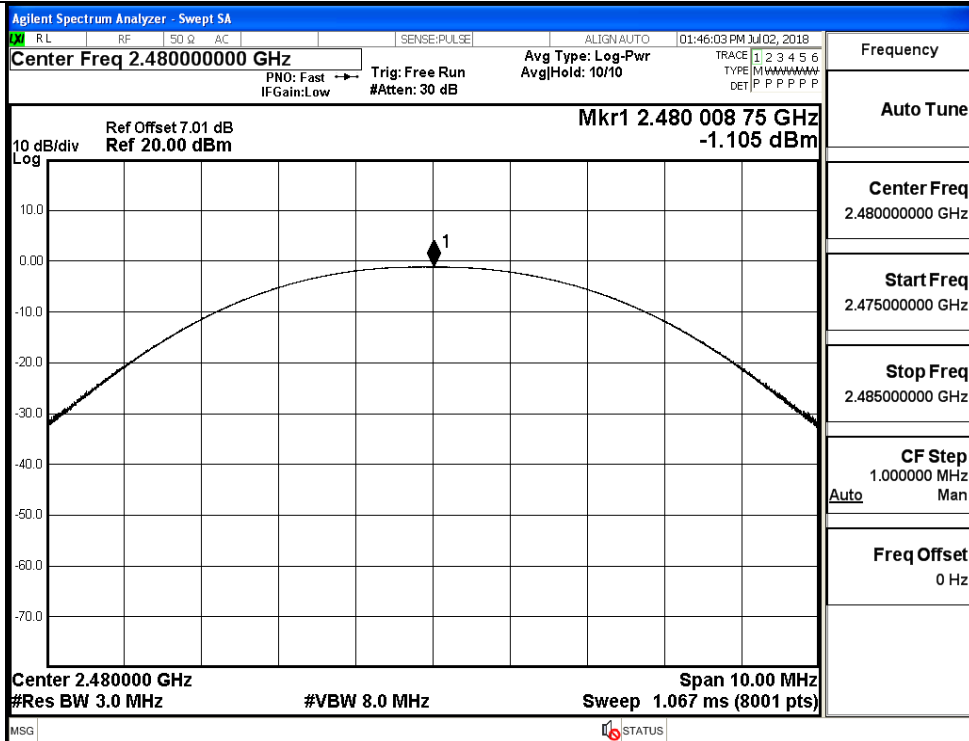
GFSK/LCH



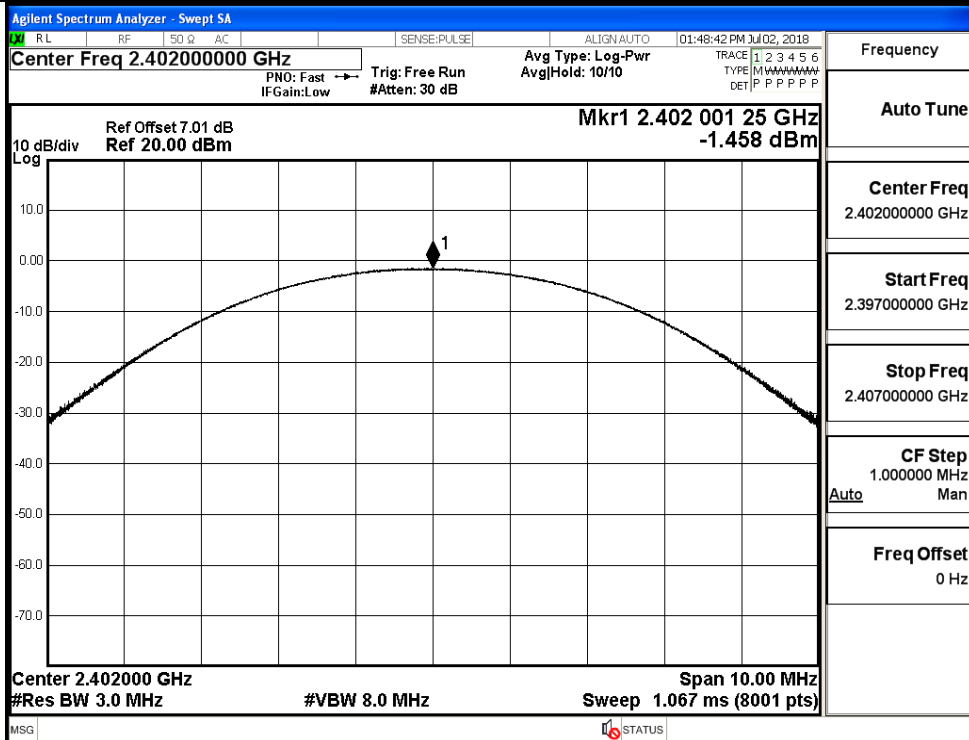
GFSK/MCH

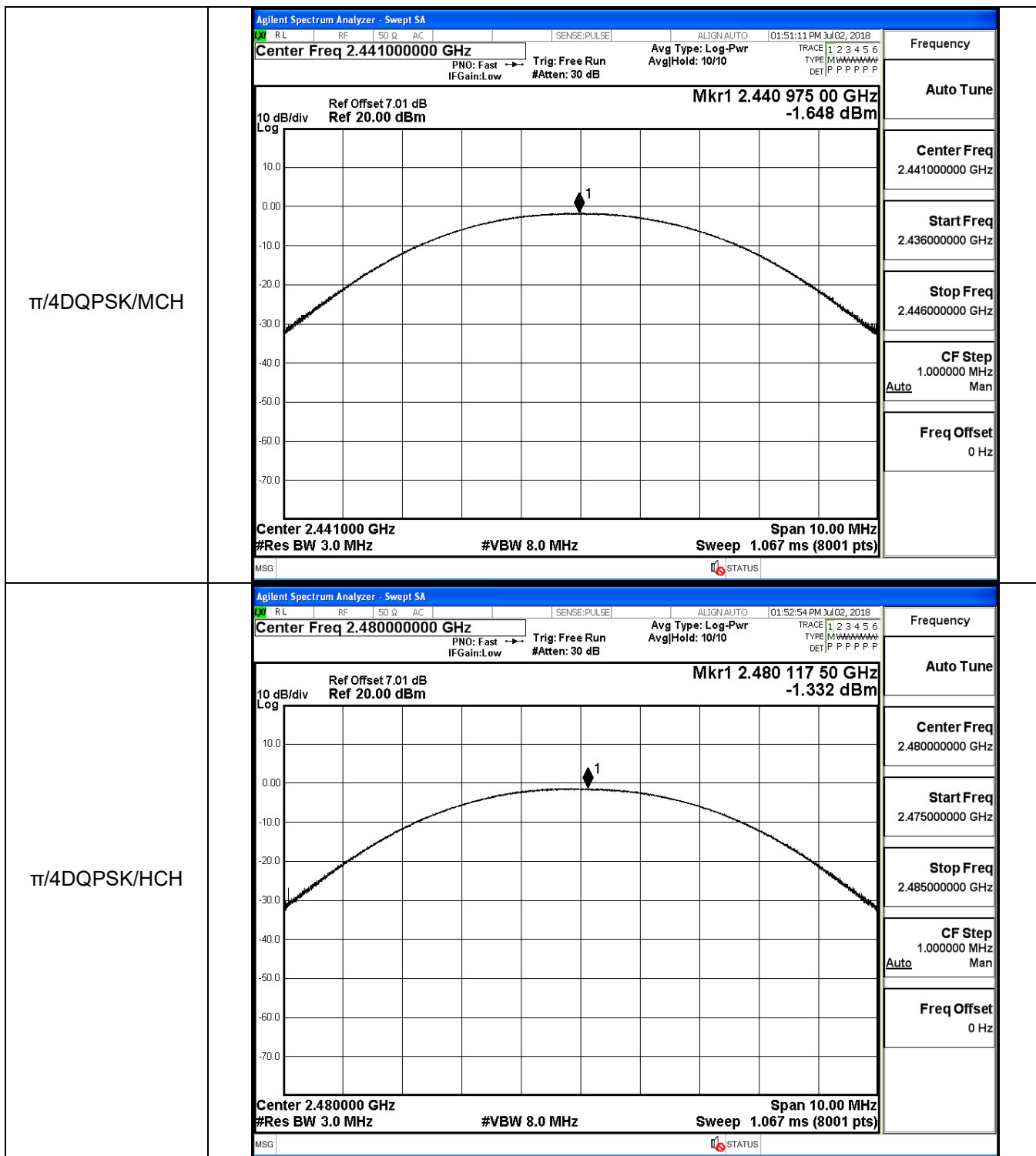


GFSK/HCH

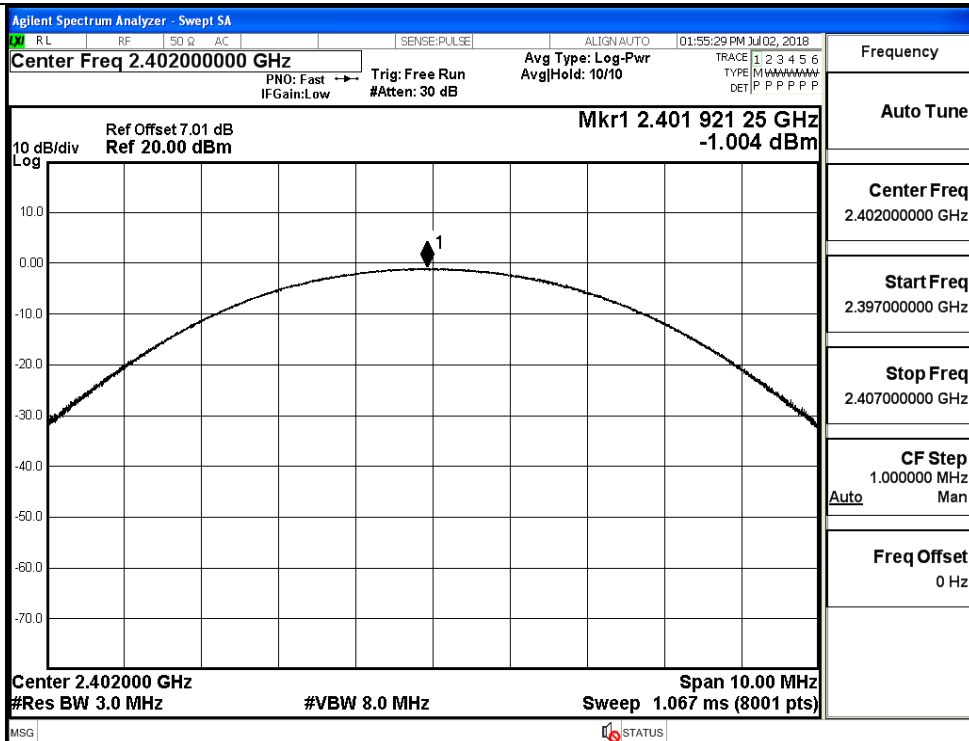


$\pi$ /4DQPSK/LCH

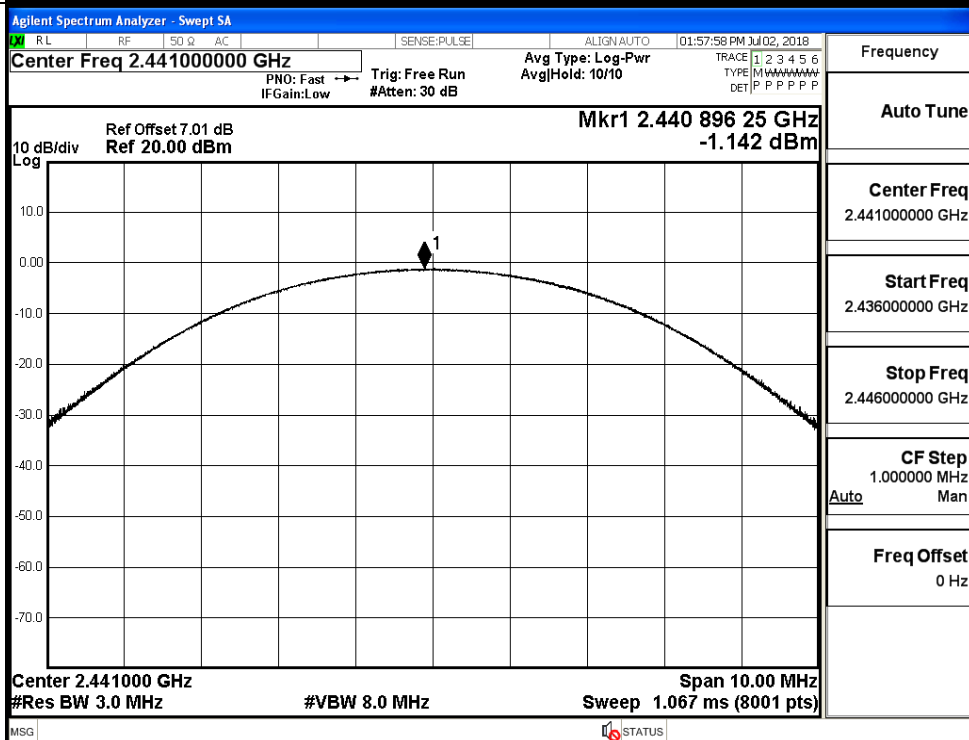




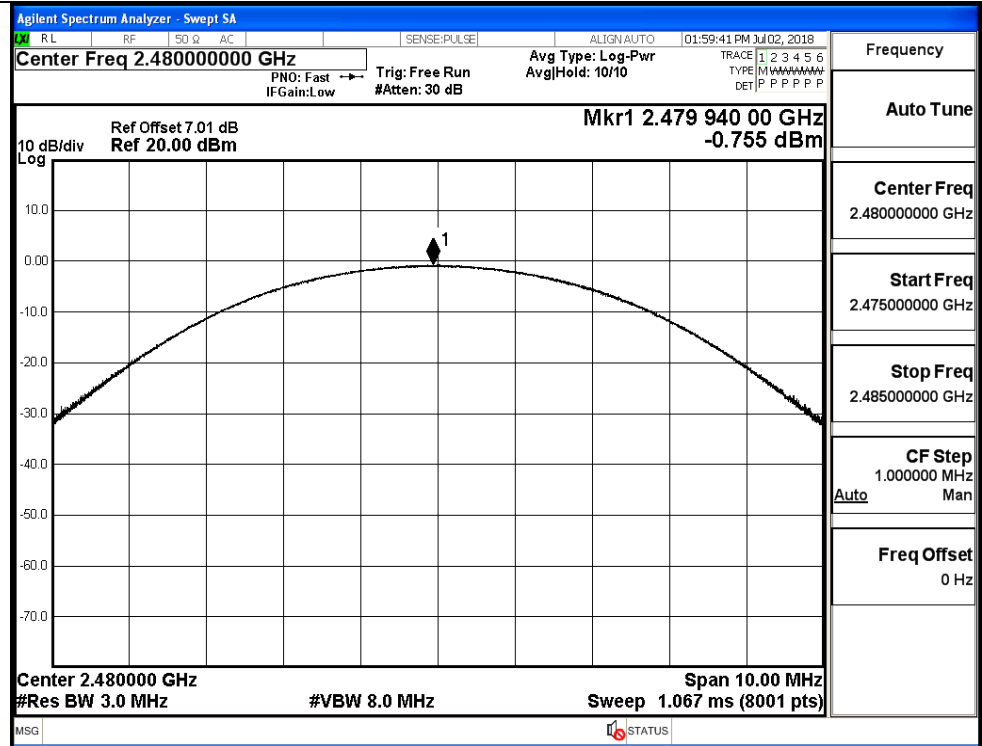
8DPSK/LCH



8DPSK/MCH



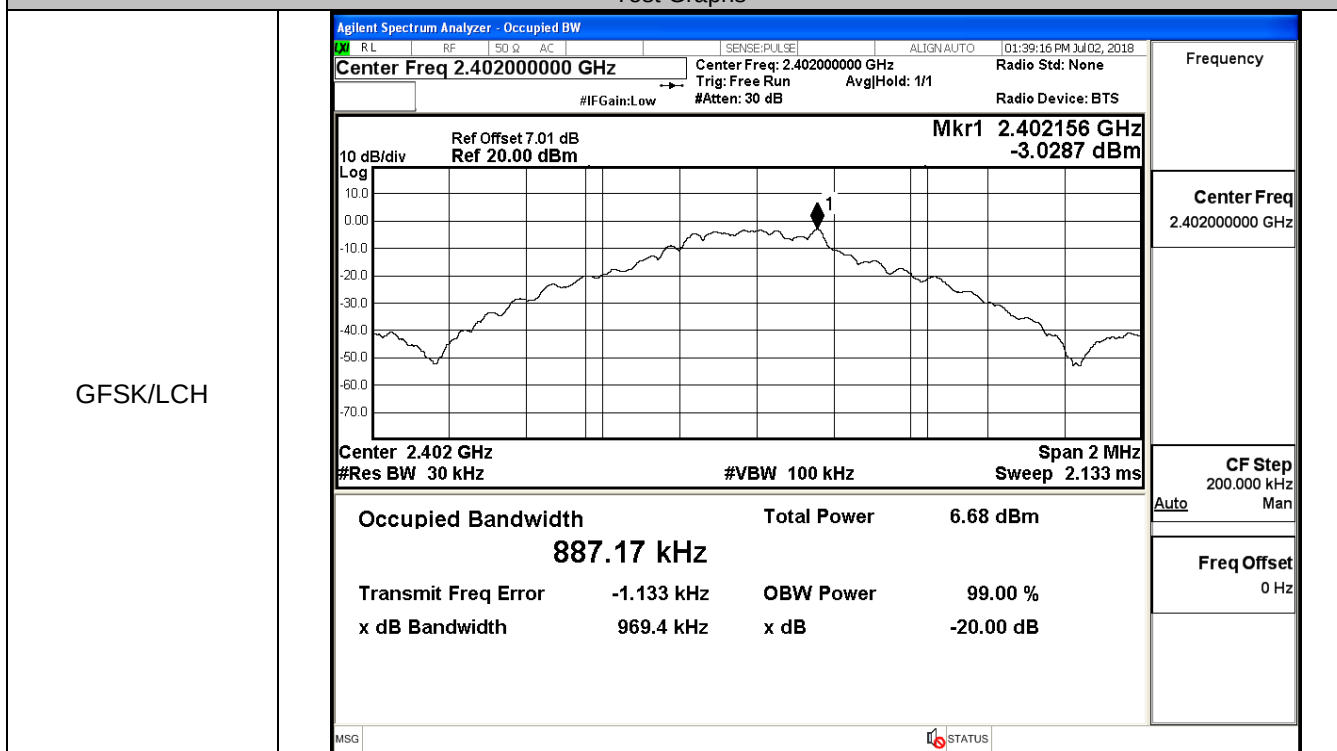
8DPSK/HCH



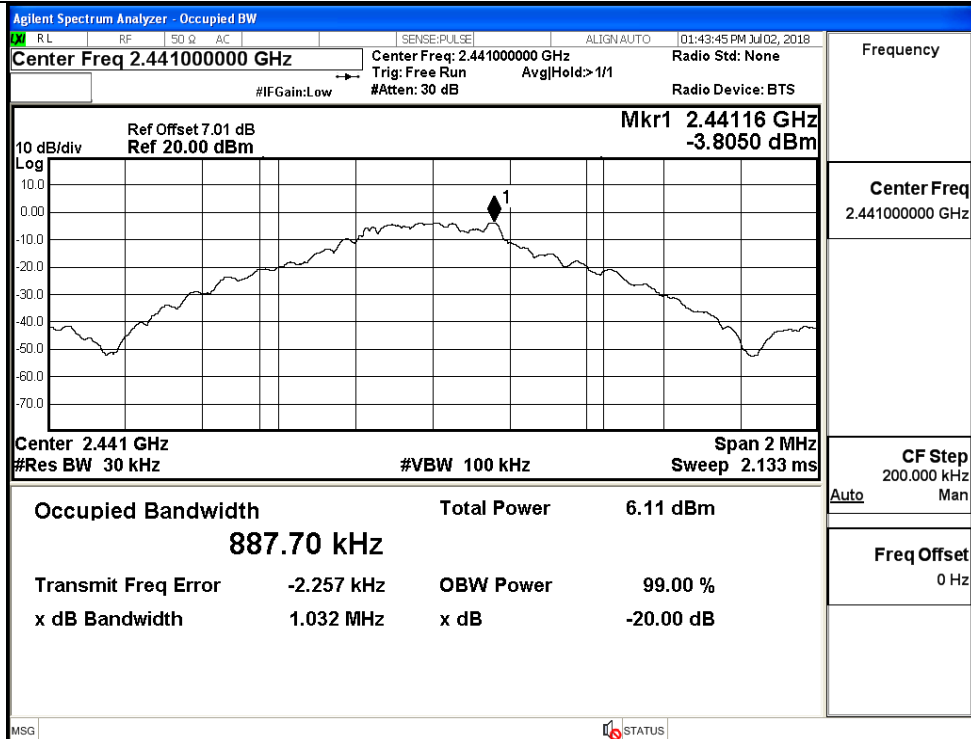
## A.2 20dB Bandwidth

| Mode          | Channel. | 20dB Bandwidth [MHz] | Limit [MHz]   | Verdict |
|---------------|----------|----------------------|---------------|---------|
| GFSK          | LCH      | 0.9694               | Not Specified | PASS    |
|               | MCH      | 1.032                | Not Specified | PASS    |
|               | HCH      | 0.9699               | Not Specified | PASS    |
| $\pi/4$ DQPSK | LCH      | 1.291                | Not Specified | PASS    |
|               | MCH      | 1.289                | Not Specified | PASS    |
|               | HCH      | 1.287                | Not Specified | PASS    |
| 8DPSK         | LCH      | 1.291                | Not Specified | PASS    |
|               | MCH      | 1.289                | Not Specified | PASS    |
|               | HCH      | 1.298                | Not Specified | PASS    |

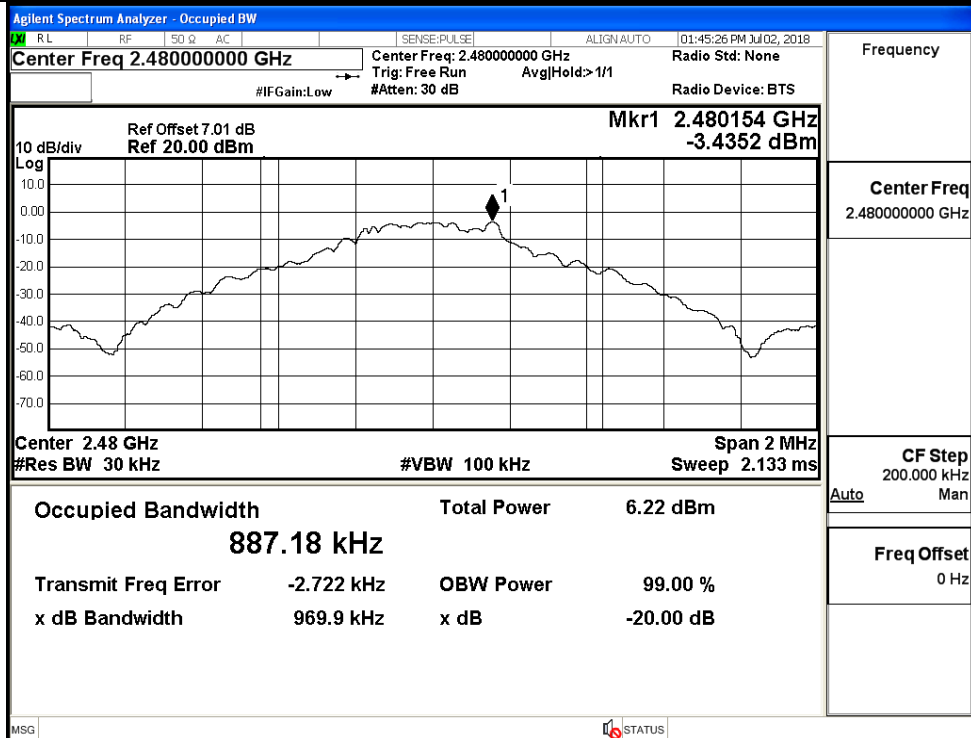
Test Graphs



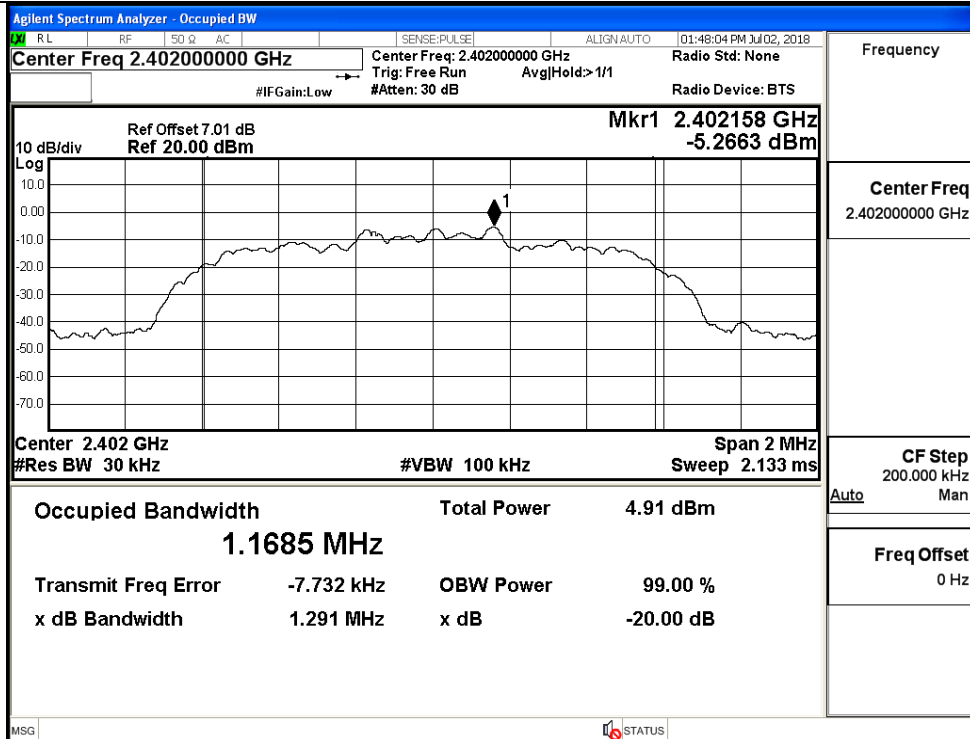
GFSK/MCH



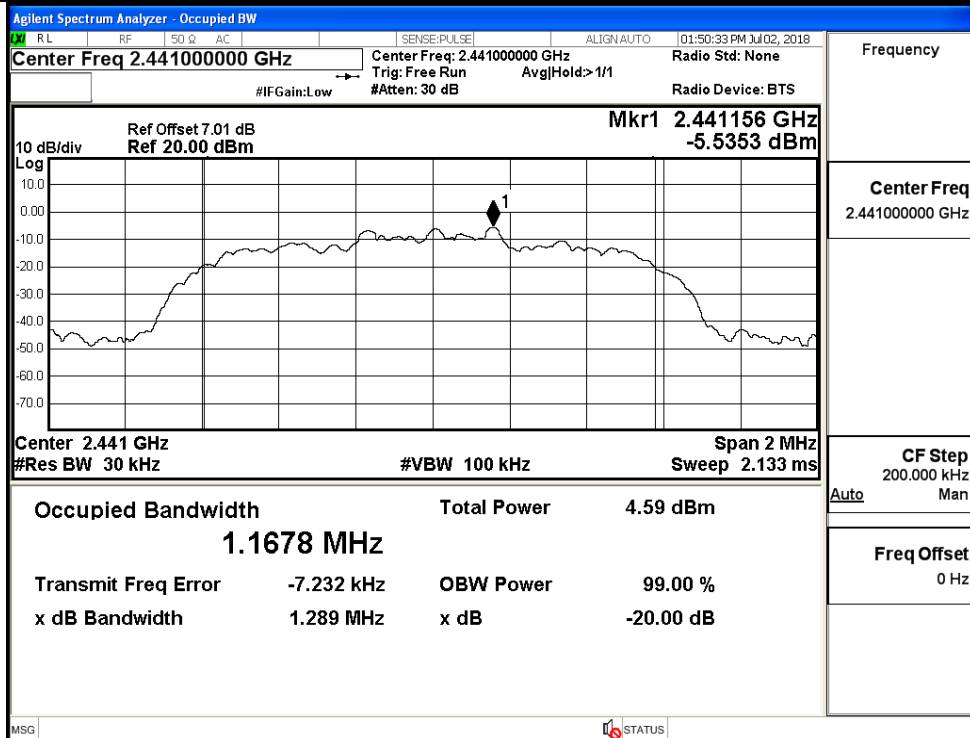
GFSK/HCH

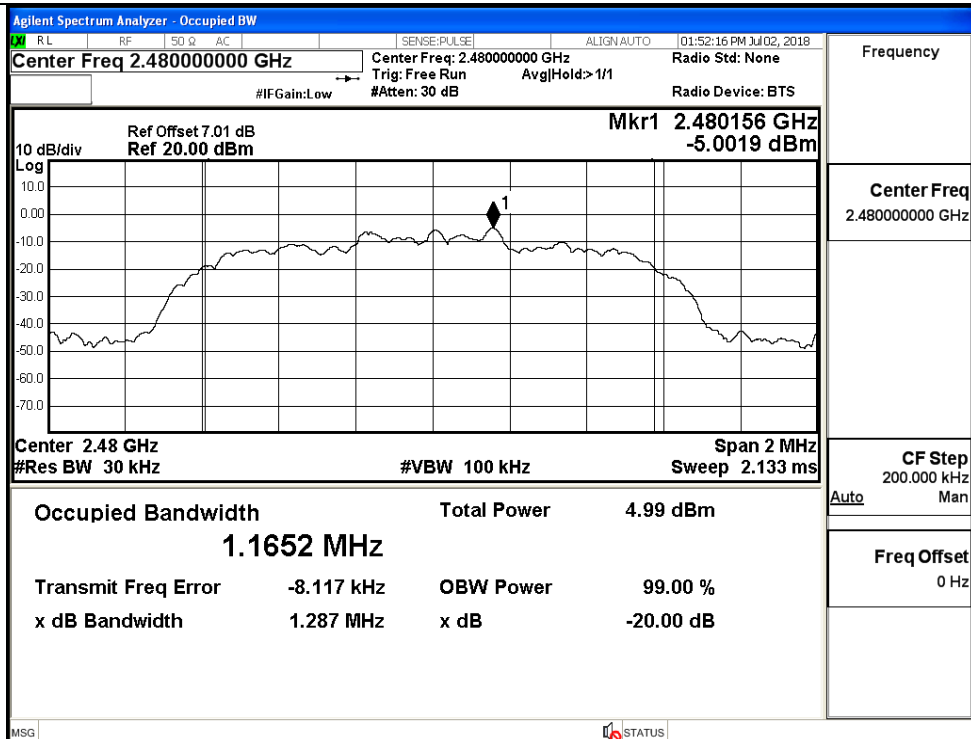


$\pi/4$ DQPSK/LCH

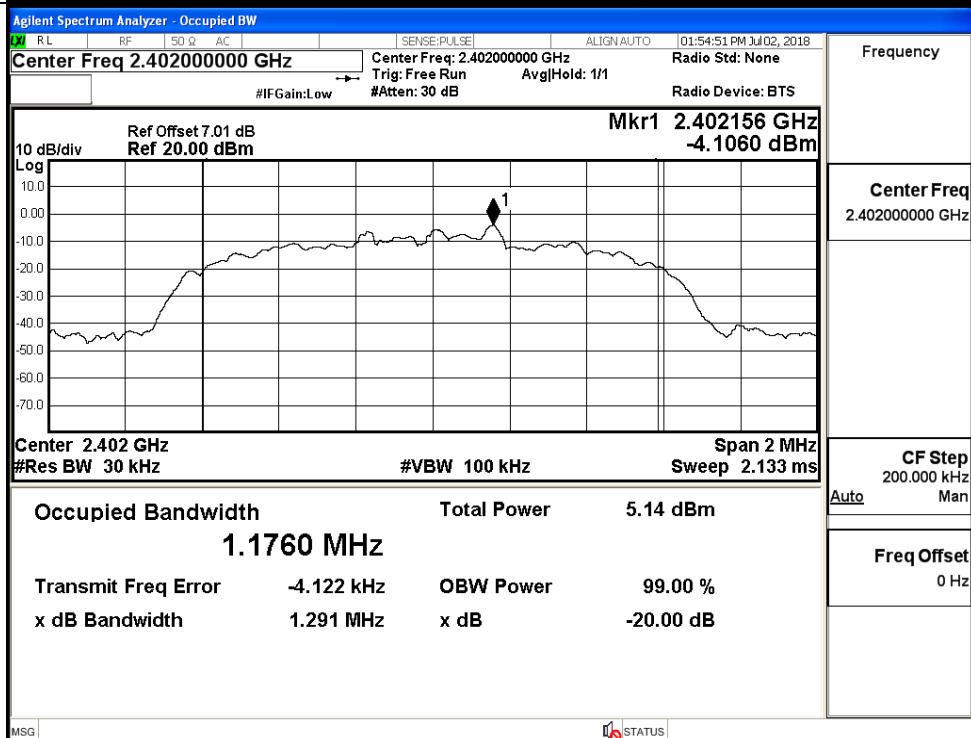


$\pi/4$ DQPSK/MCH

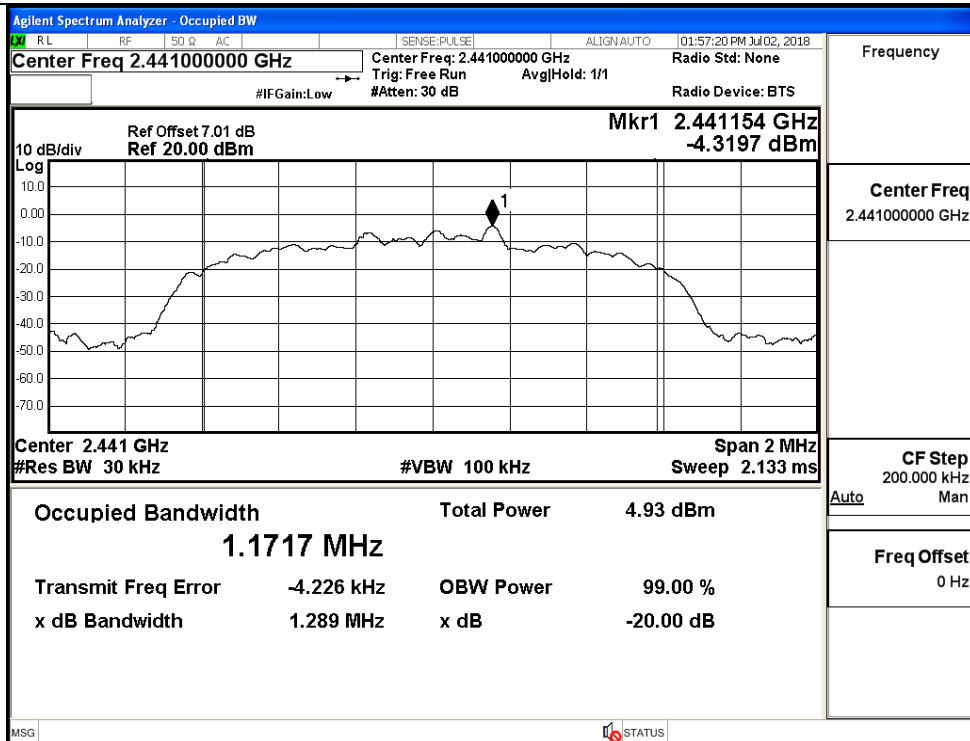


$\pi/4$ DQPSK/HCH

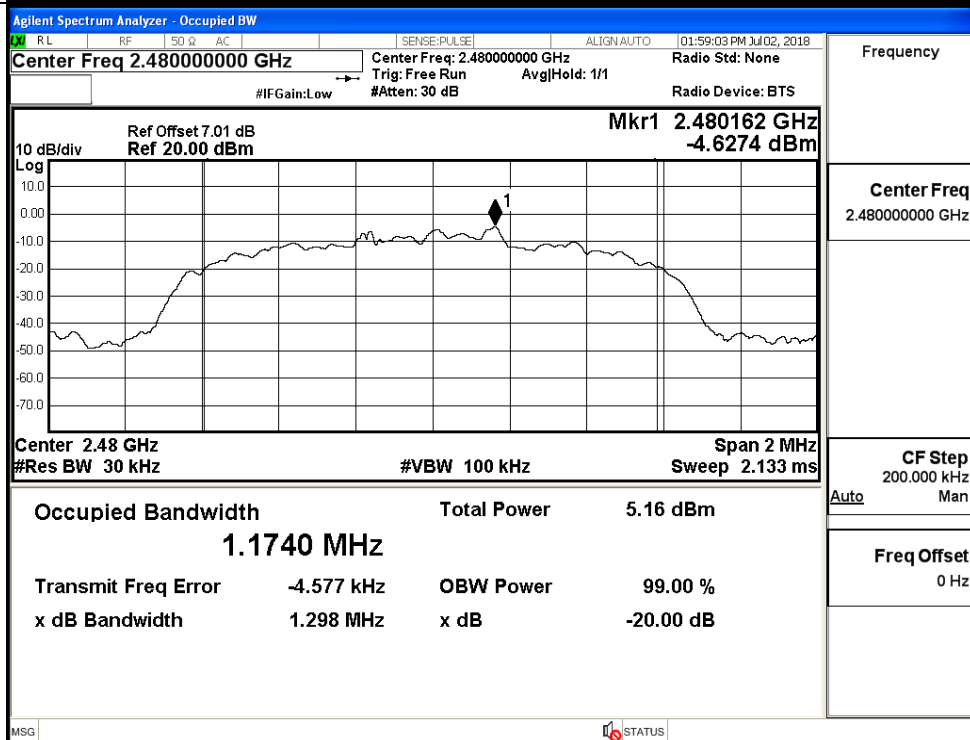
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

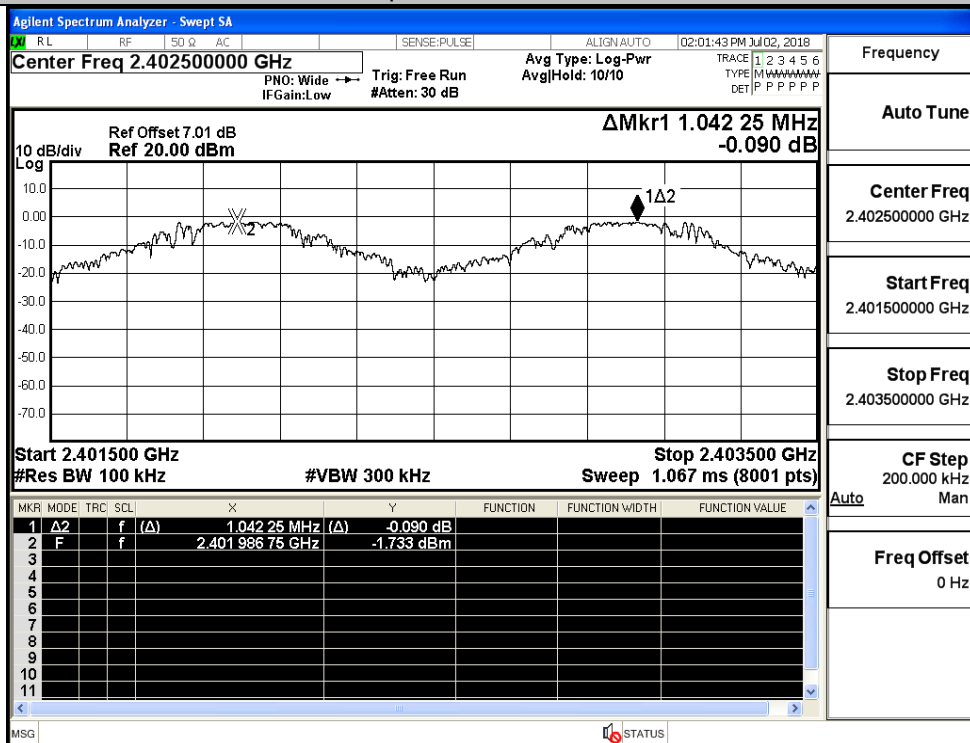


### A.3 Carrier Frequency Separation

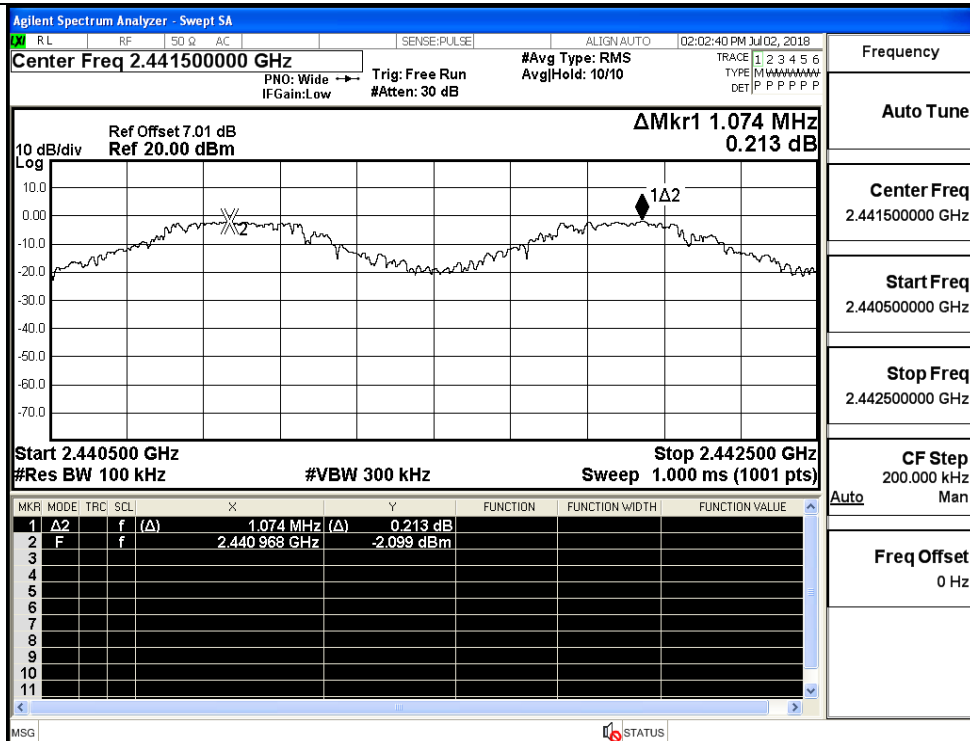
| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit [MHz] | Verdict |
|---------------|----------|------------------------------------|-------------|---------|
| GFSK          | LCH      | 1.042                              | 0.688       | PASS    |
|               | MCH      | 1.074                              | 0.688       | PASS    |
|               | HCH      | 1.140                              | 0.688       | PASS    |
| $\pi$ /4DQPSK | LCH      | 1.118                              | 0.861       | PASS    |
|               | MCH      | 1.296                              | 0.861       | PASS    |
|               | HCH      | 1.276                              | 0.861       | PASS    |
| 8DPSK         | LCH      | 1.128                              | 0.865       | PASS    |
|               | MCH      | 0.876                              | 0.865       | PASS    |
|               | HCH      | 0.958                              | 0.865       | PASS    |

#### Test Graphs

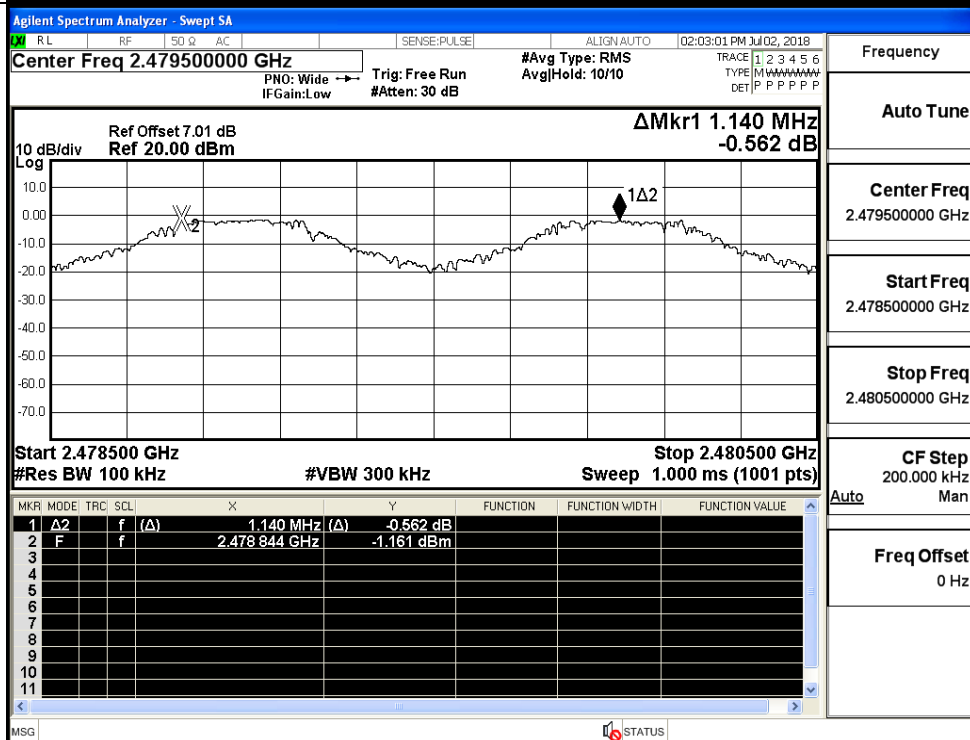
GFSK/LCH



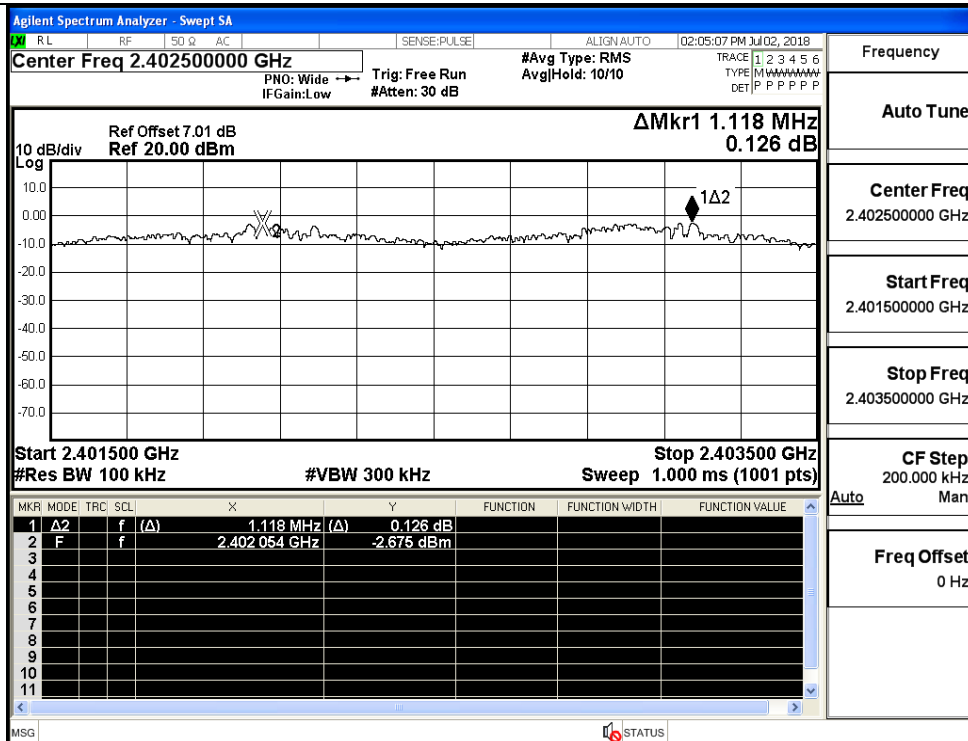
GFSK/MCH



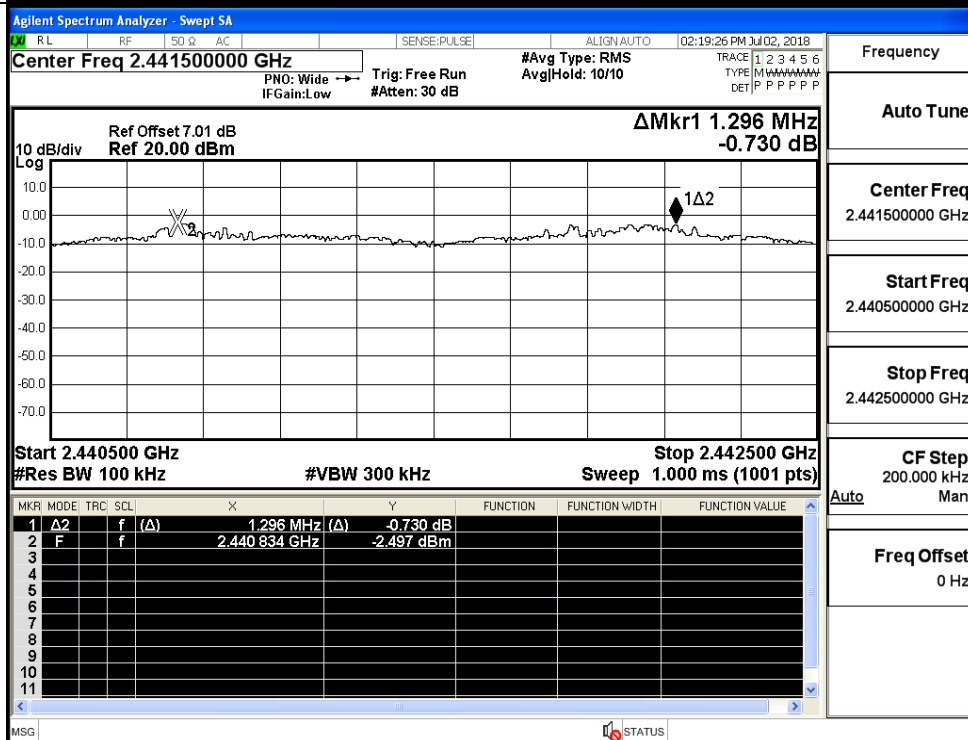
GFSK/HCH



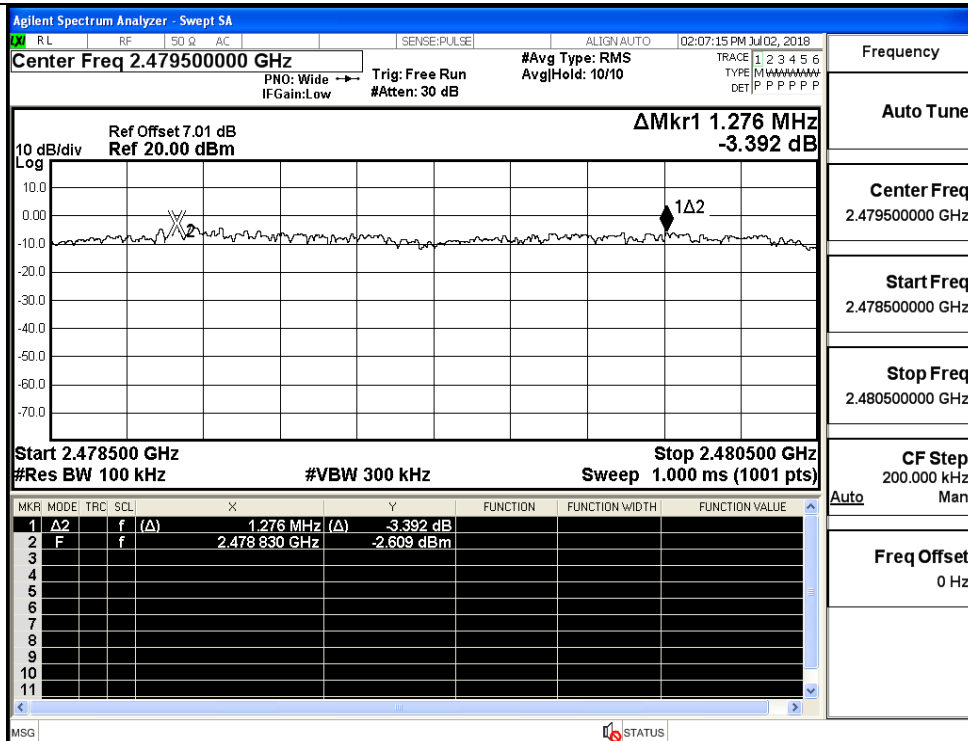
$\pi/4$ DQPSK/LCH



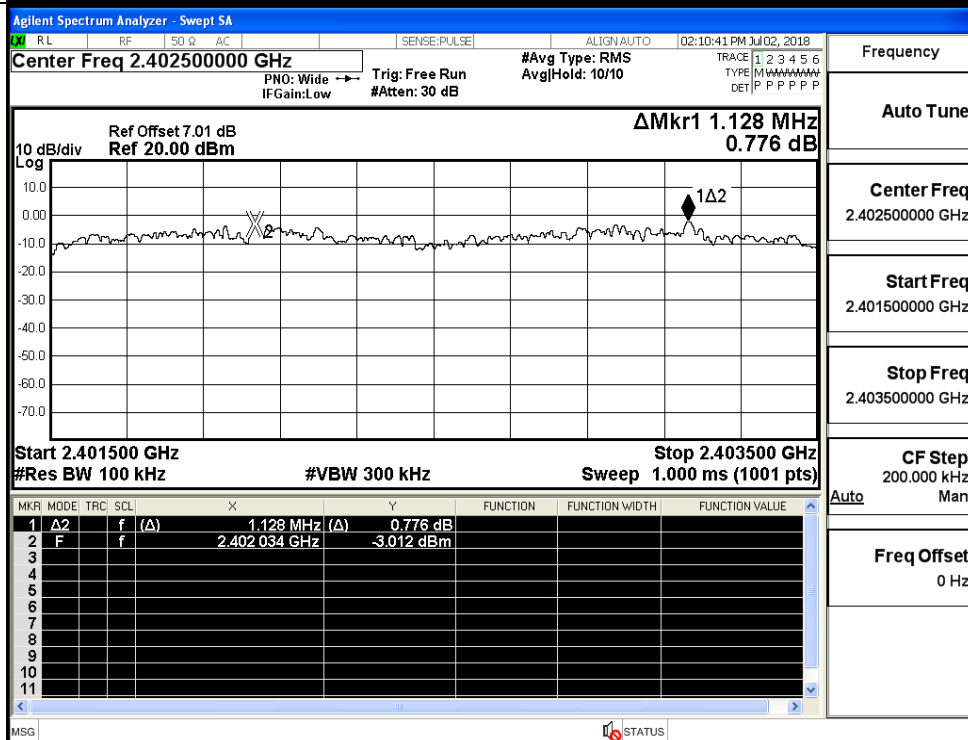
$\pi/4$ DQPSK/MCH



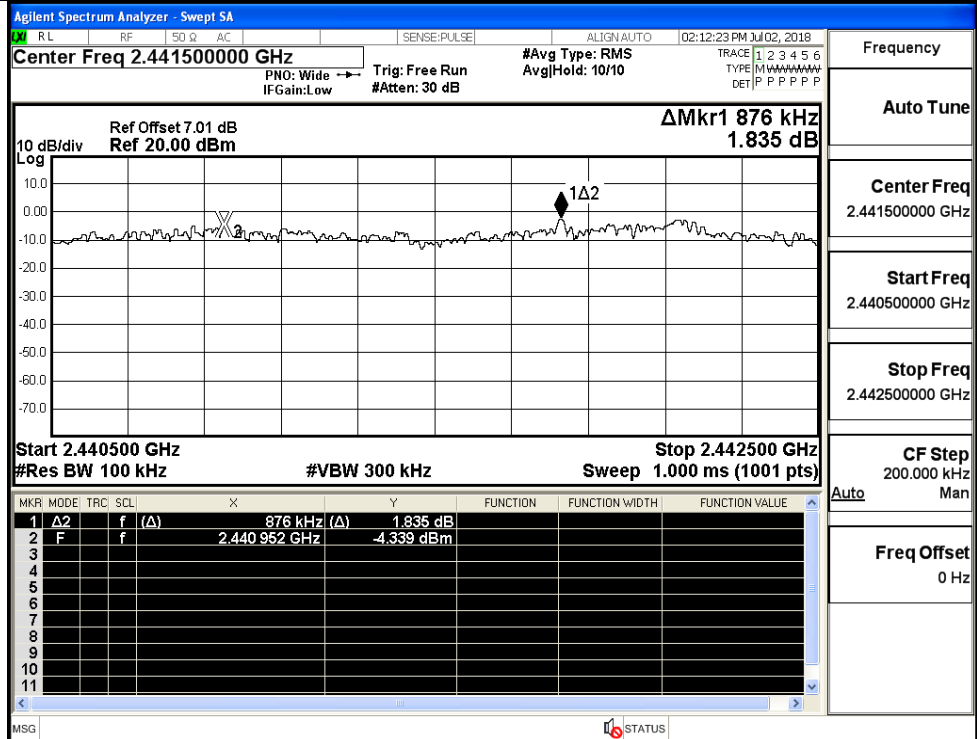
$\pi/4$ DQPSK/HCH



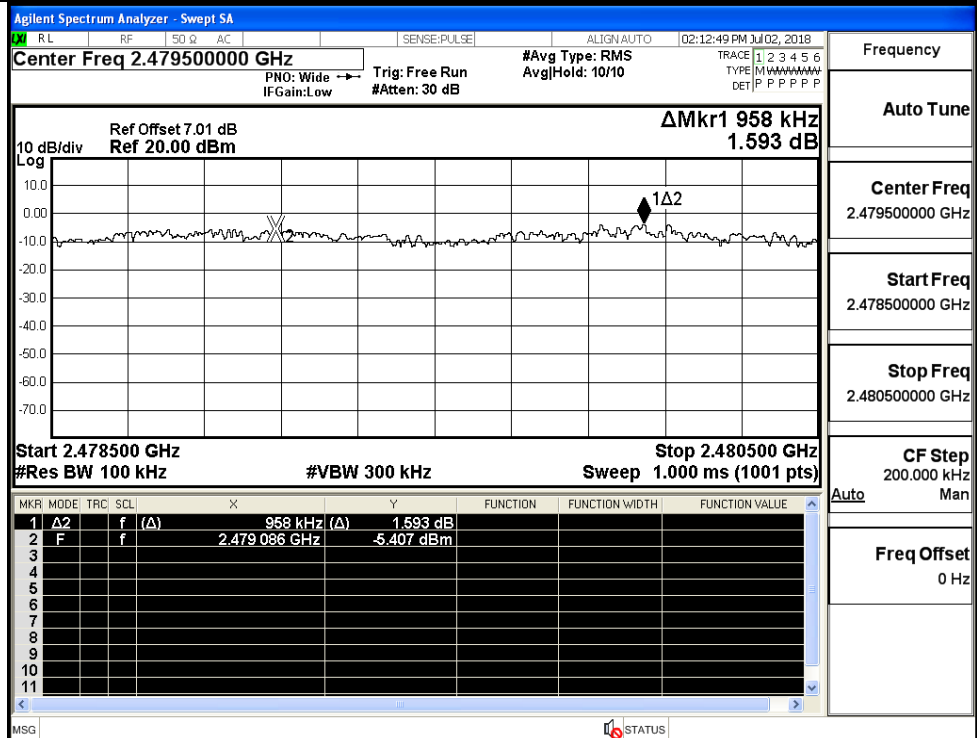
8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

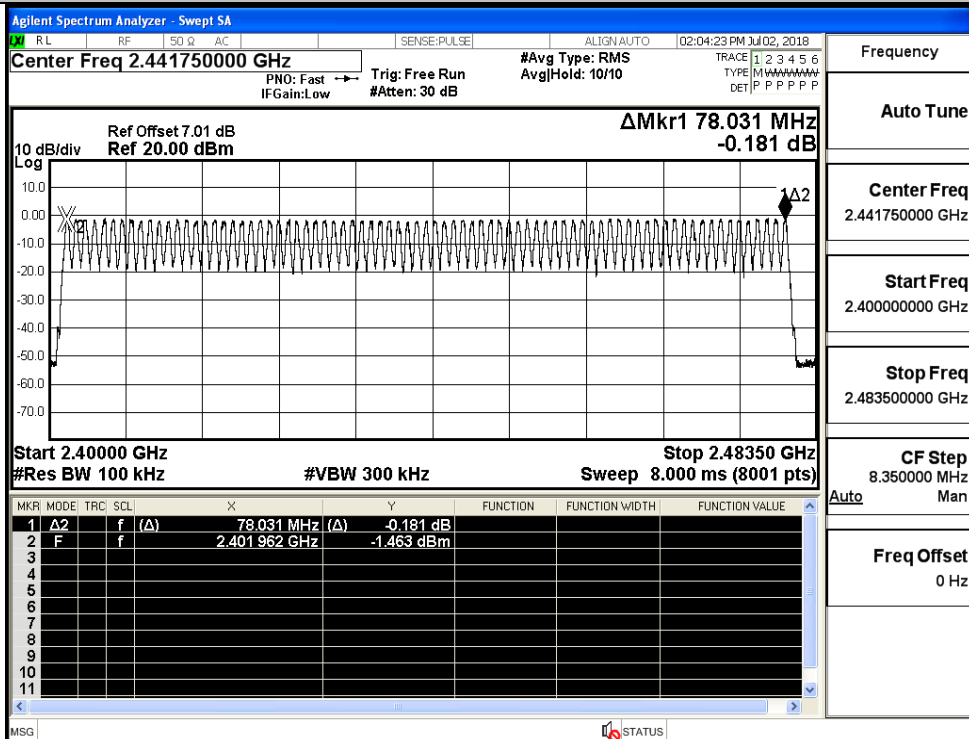
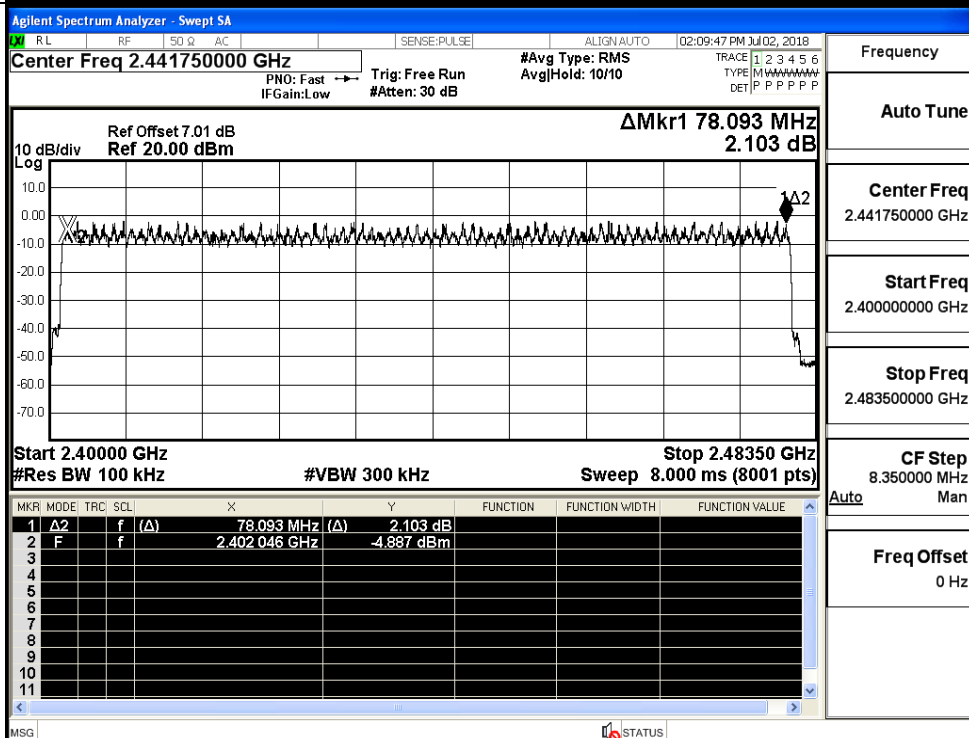


## A.4 Hopping Channel Number

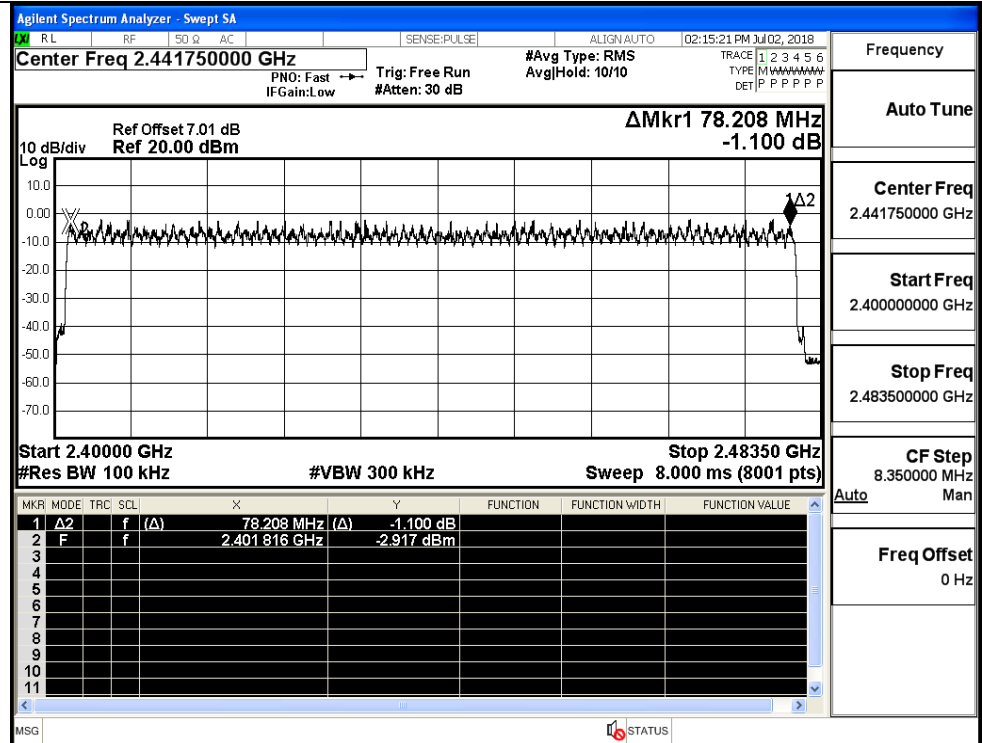
| Mode          | Channel. | Number of Hopping Channel [N] | Limit [N] | Verdict |
|---------------|----------|-------------------------------|-----------|---------|
| GFSK          | Hop      | 79                            | $\geq 15$ | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                            | $\geq 15$ | PASS    |
| 8DPSK         | Hop      | 79                            | $\geq 15$ | PASS    |

## Test Graphs

GFSK/Hop

 $\pi/4$ DQPSK/Hop

8DPSK/Hop

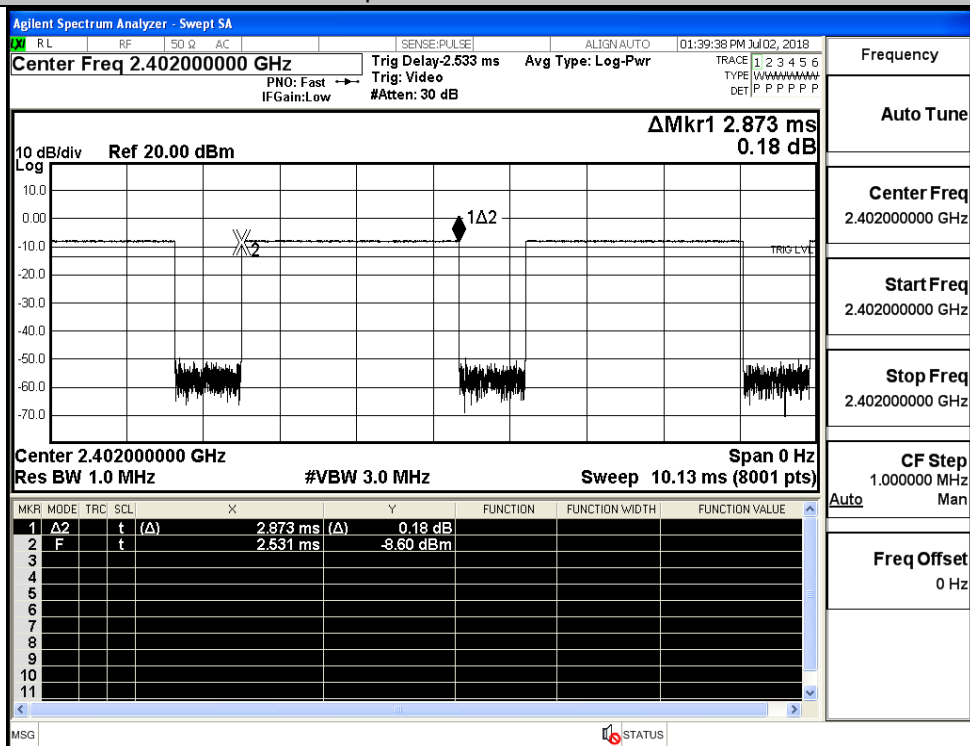


## A.5 Dwell Time

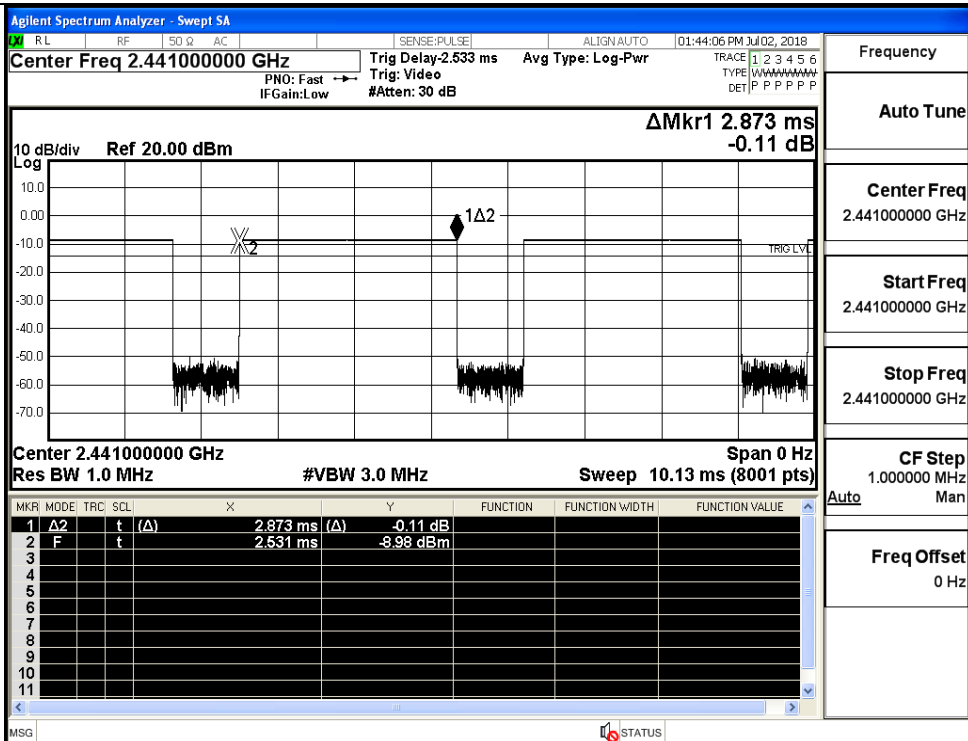
| Mode          | Packet | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell Time[s] | Limit [s] | Verdict |
|---------------|--------|---------|----------------------------|-----------------------|---------------|-----------|---------|
| GFSK          | DH5    | LCH     | 2.87                       | 106.7                 | 0.306         | 0.4       | PASS    |
|               | DH5    | MCH     | 2.87                       | 106.7                 | 0.306         | 0.4       | PASS    |
|               | DH5    | HCH     | 2.87                       | 106.7                 | 0.306         | 0.4       | PASS    |
| $\pi/4$ DQPSK | 2DH5   | LCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 2DH5   | MCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 2DH5   | HCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
| 8DPSK         | 3DH5   | LCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 3DH5   | MCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |
|               | 3DH5   | HCH     | 2.87                       | 106.7                 | 0.307         | 0.4       | PASS    |

## Test Graphs

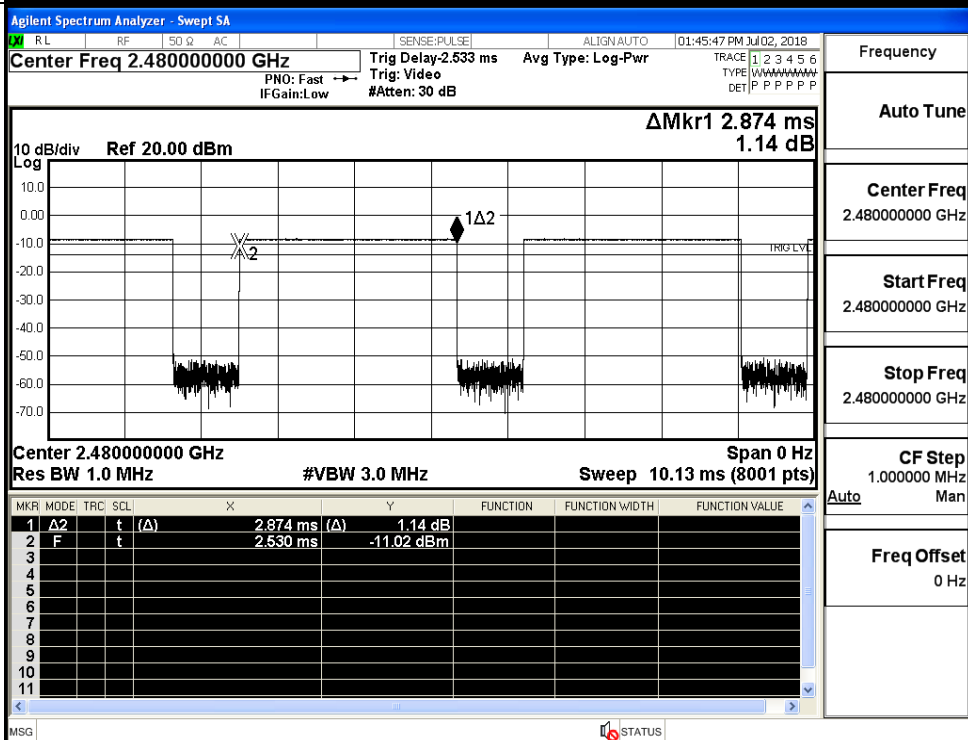
GFSK\_DH5/LCH



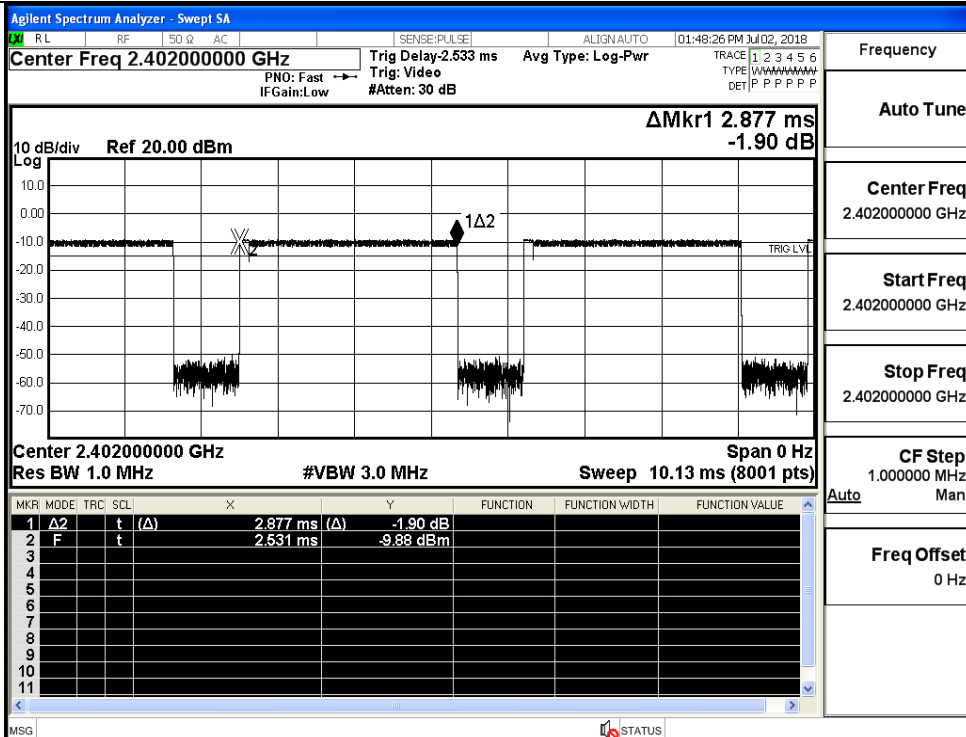
GFSK\_DH5/MCH



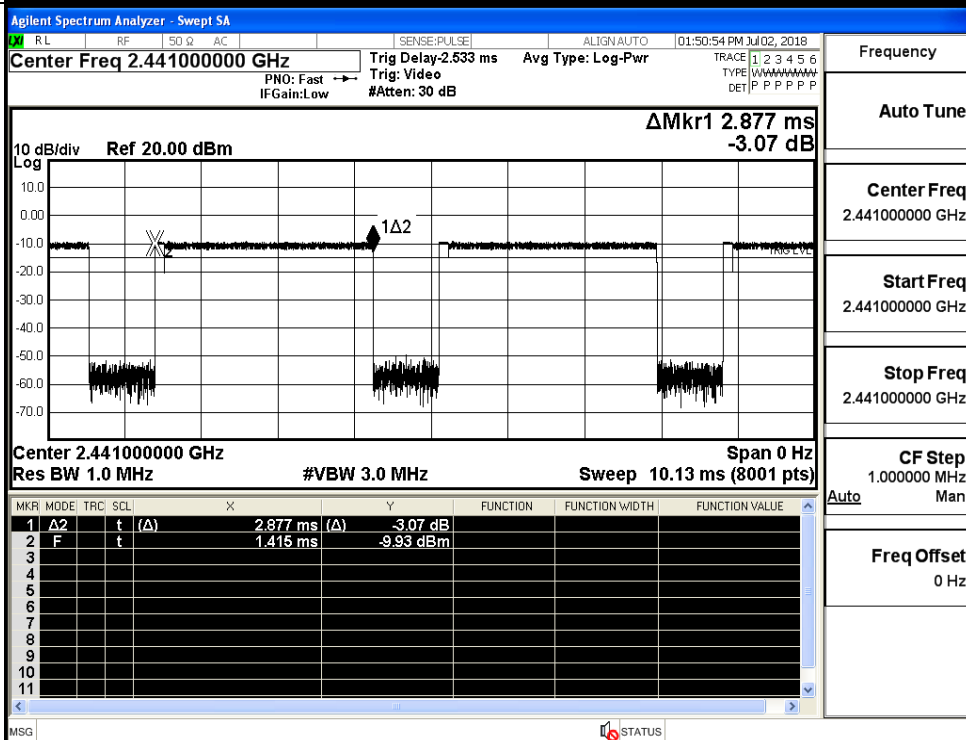
GFSK\_DH5/HCH



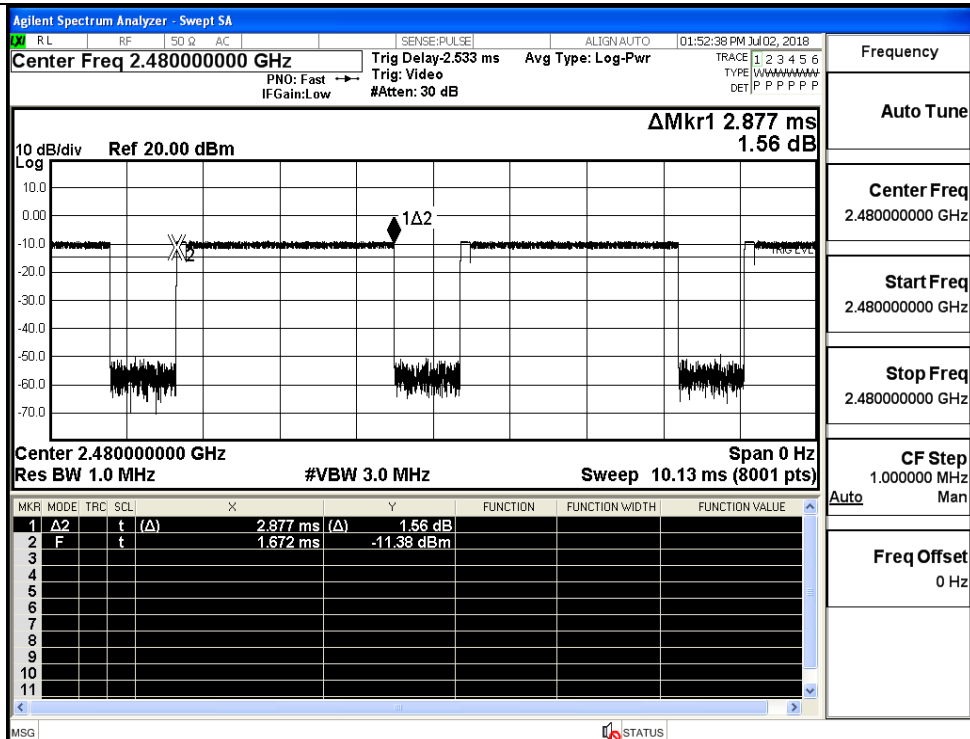
$\pi/4$ DQPSK  
\_2DH5/LCH



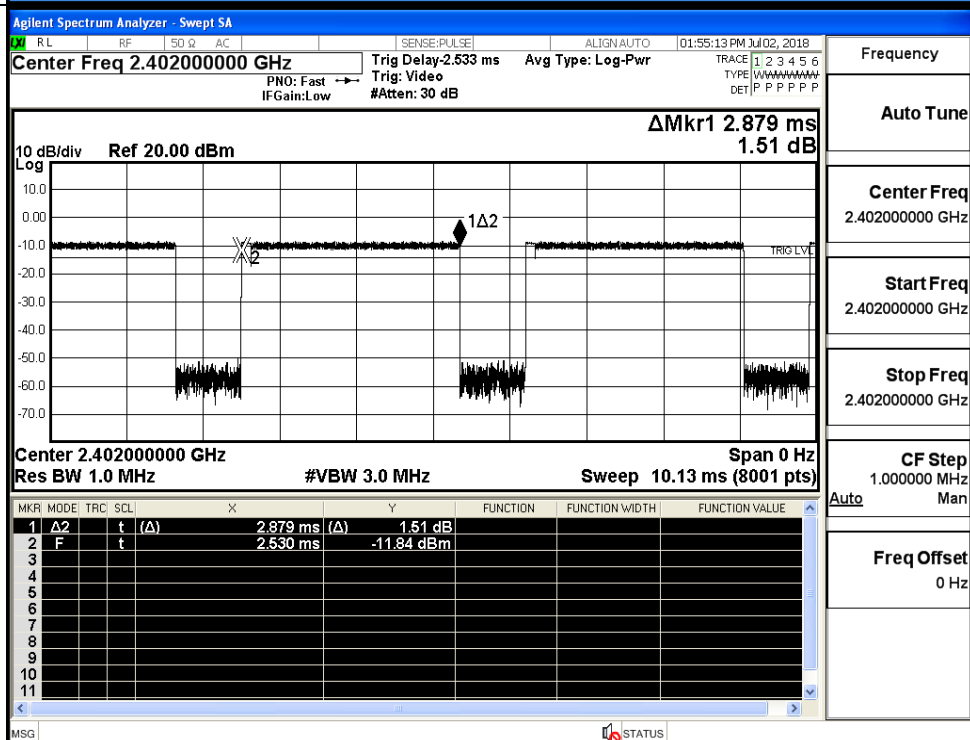
$\pi/4$ DQPSK  
\_2DH5/MCH



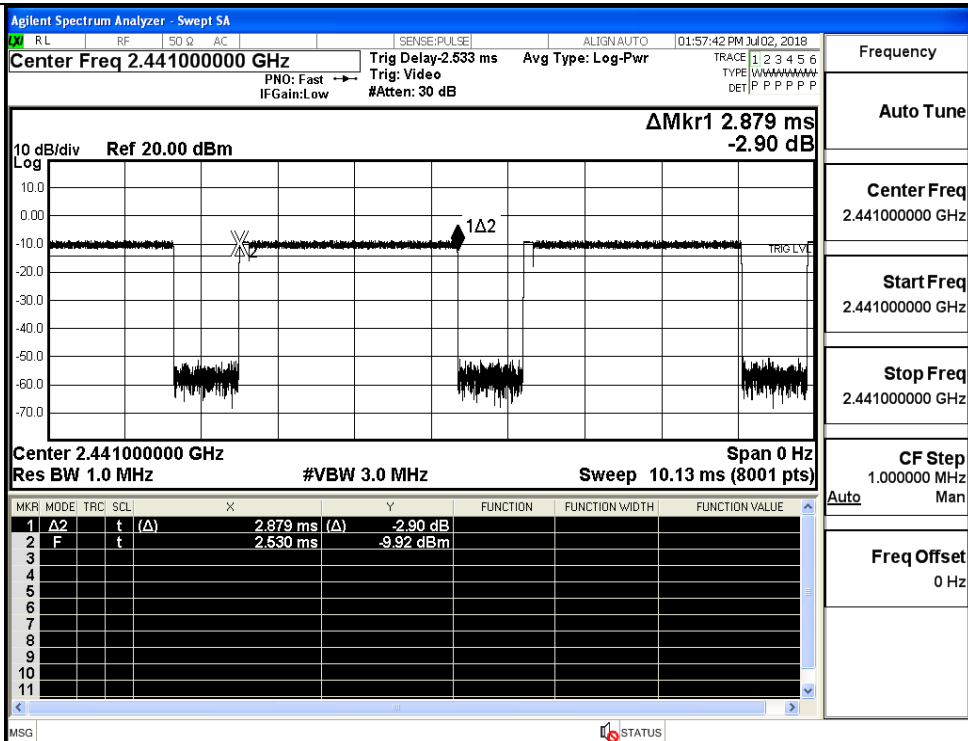
$\pi/4$ DQPSK  
\_2DH5/HCH



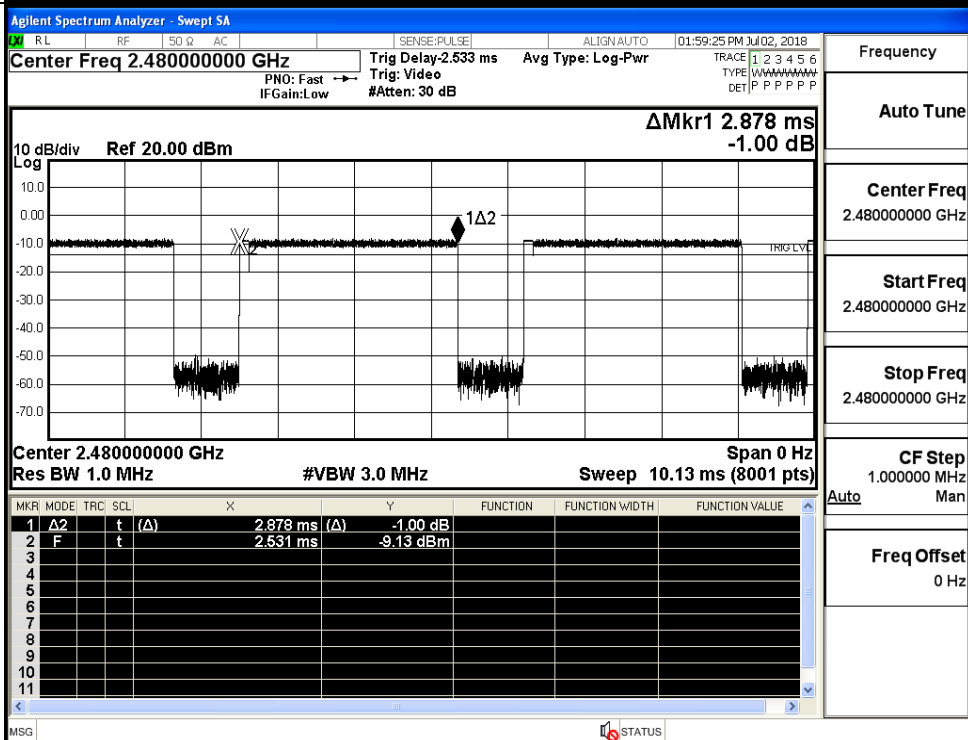
8DPSK \_3DH5/LCH



8DPSK\_3DH5/MCH



8DPSK\_3DH5/HCH

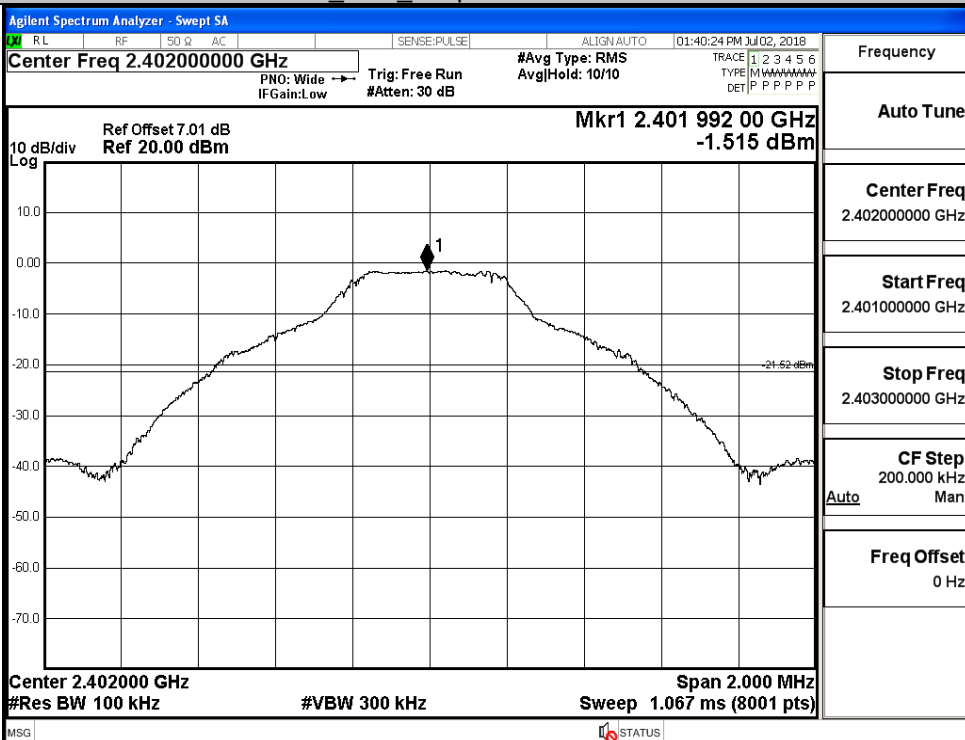


## A.6 RF Conducted Spurious Emissions

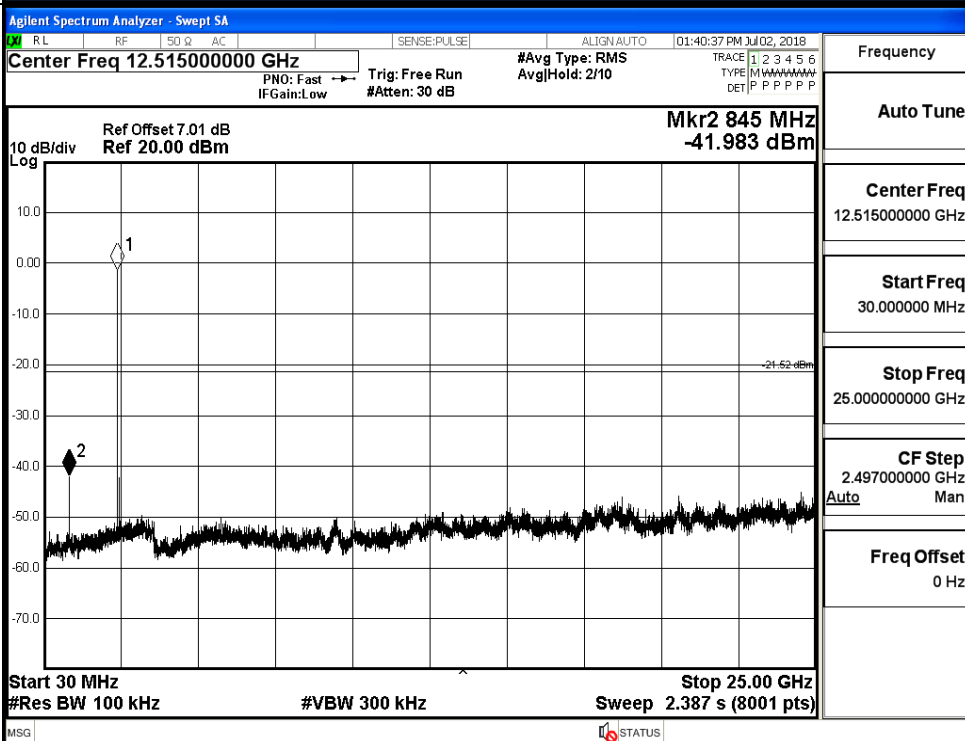
| Mode          | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|------------|------------------|-------------|---------|
| GFSK          | LCH     | -1.515     | -41.983          | -21.515     | PASS    |
|               | MCH     | -1.483     | -38.098          | -21.483     | PASS    |
|               | HCH     | -1.815     | -45.898          | -21.815     | PASS    |
| $\pi/4$ DQPSK | LCH     | -2.337     | -46.020          | -22.337     | PASS    |
|               | MCH     | -2.573     | -45.607          | -22.573     | PASS    |
|               | HCH     | -2.519     | -42.321          | -22.519     | PASS    |
| 8DPSK         | LCH     | -1.99      | -35.038          | -21.990     | PASS    |
|               | MCH     | -2.371     | -41.779          | -22.371     | PASS    |
|               | HCH     | -1.911     | -34.465          | -21.911     | PASS    |

# GFSK LCH Graphs

Pref

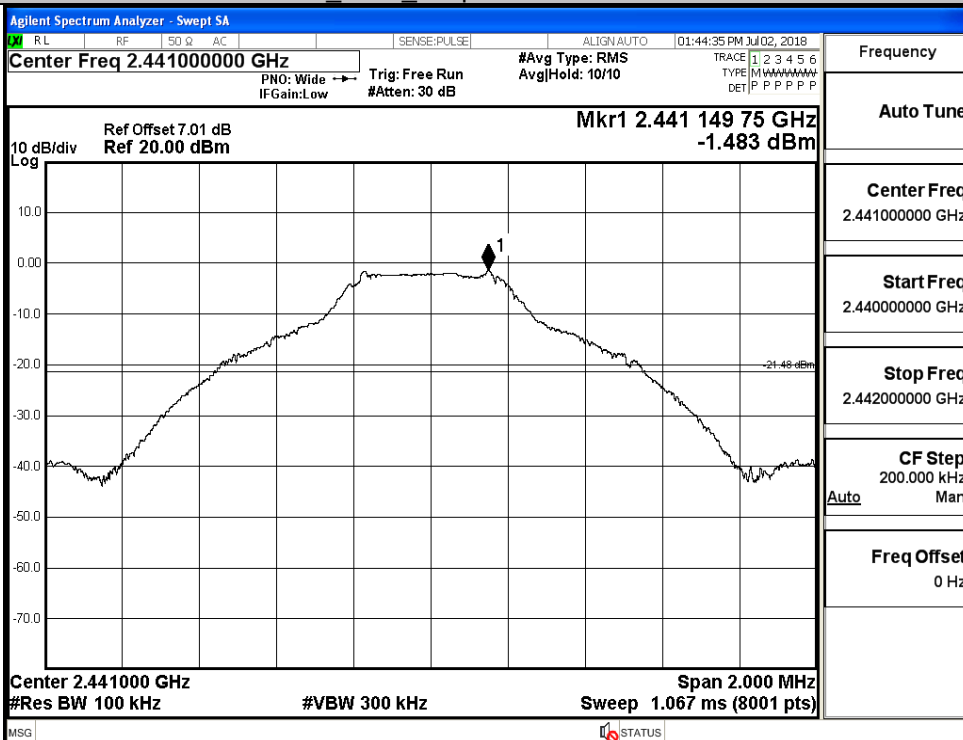


Puw

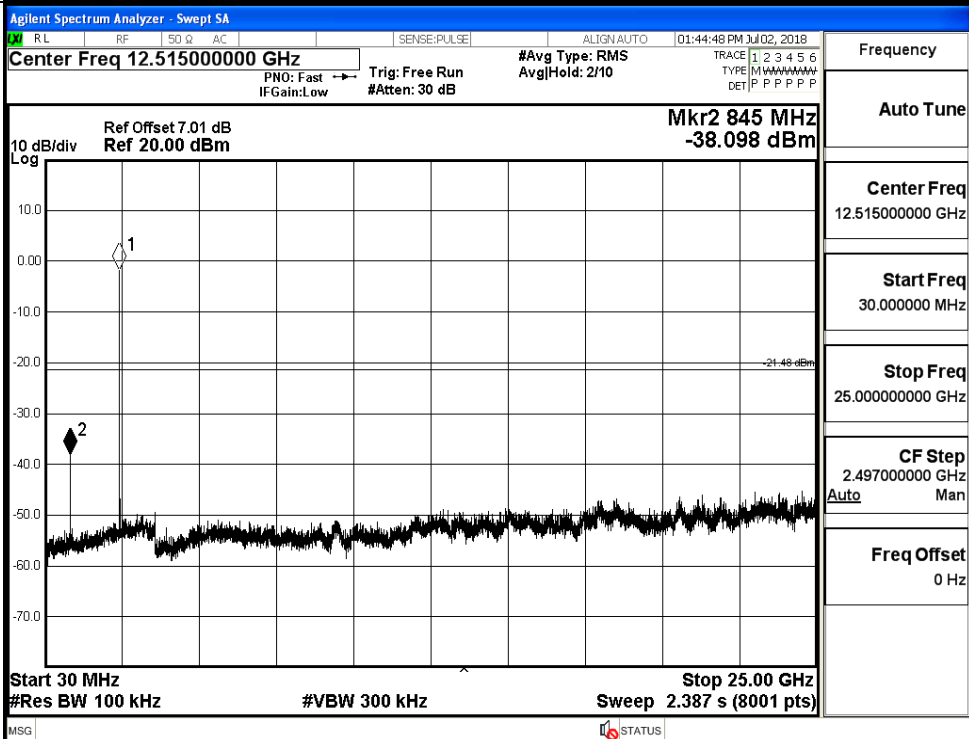


# GFSK\_MCH\_Graphs

Pref

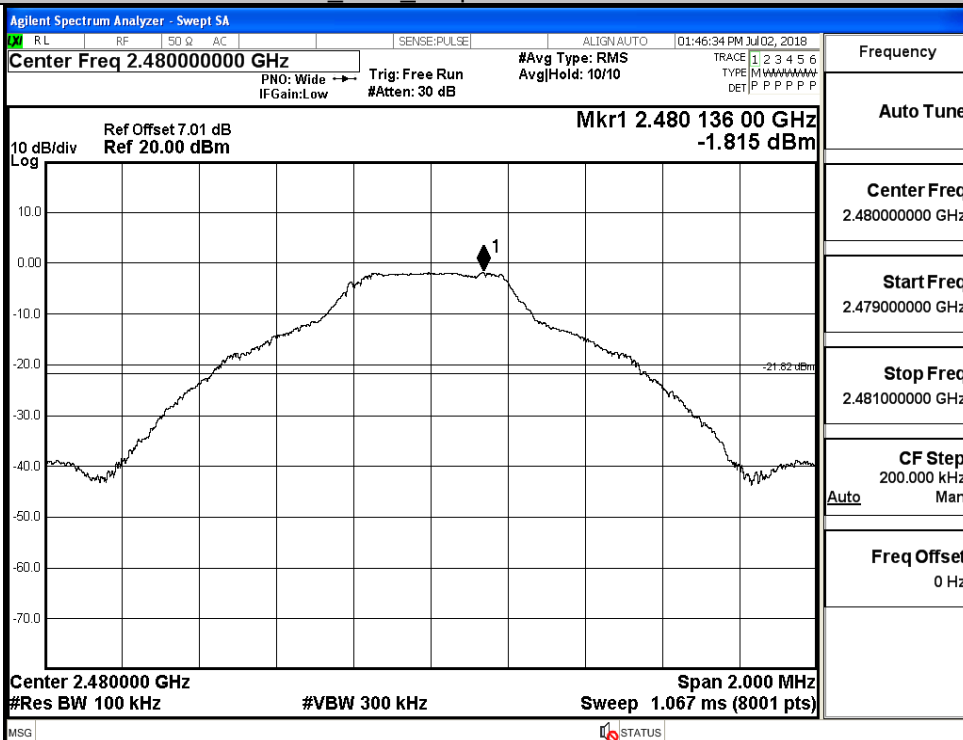


Puw

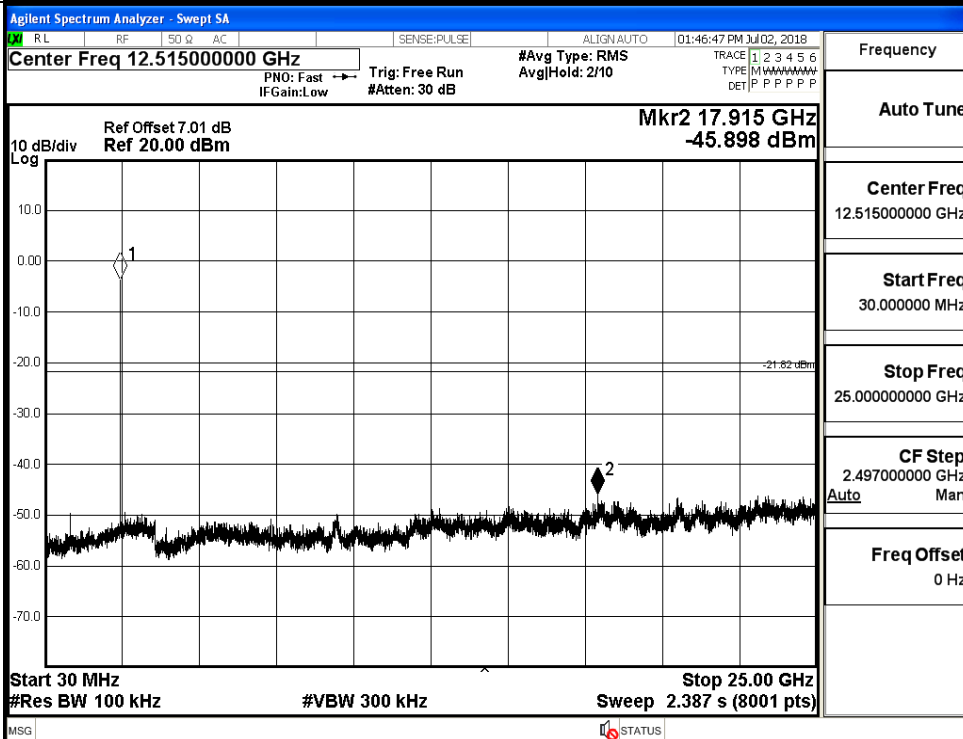


# GFSK HCH Graphs

Pref

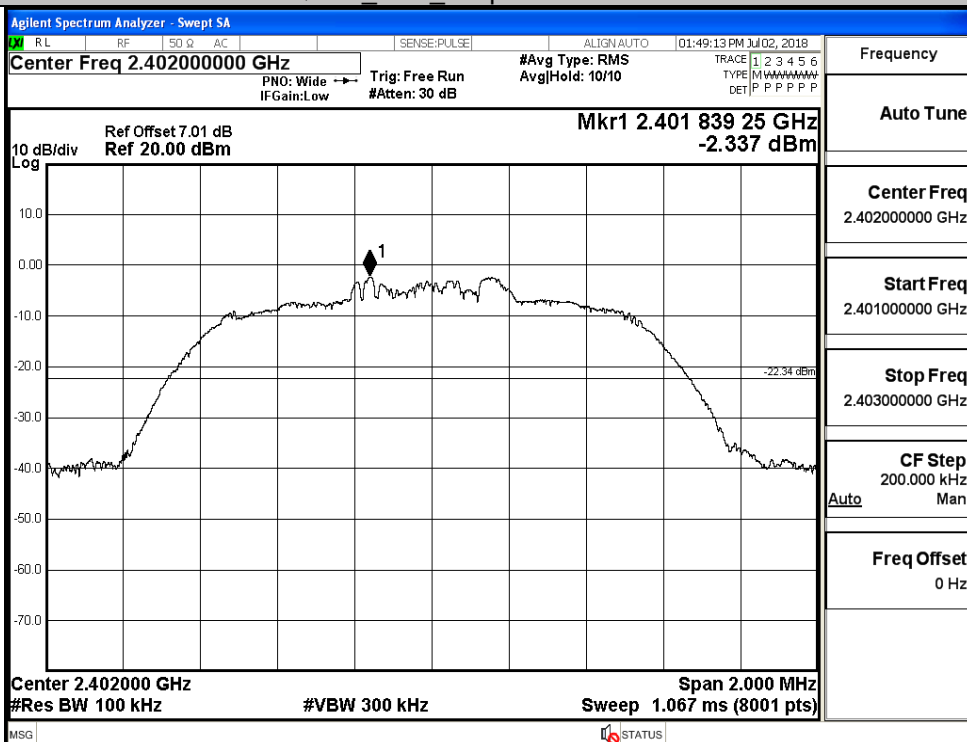


Puw

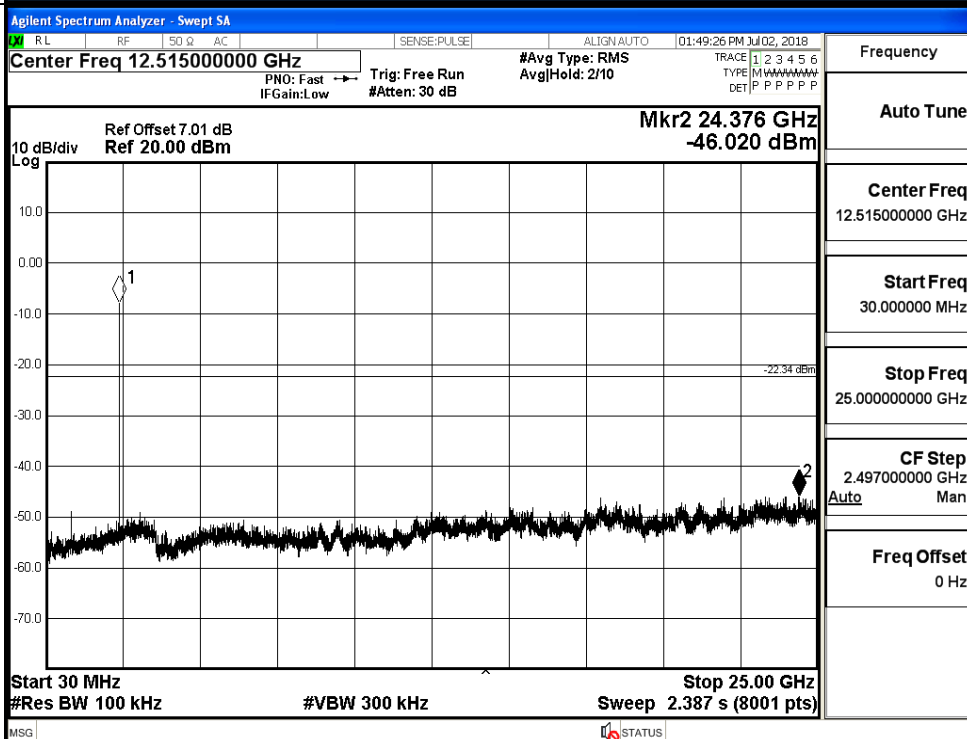


$\pi/4$ DQPSK LCH\_Graphs

Pref

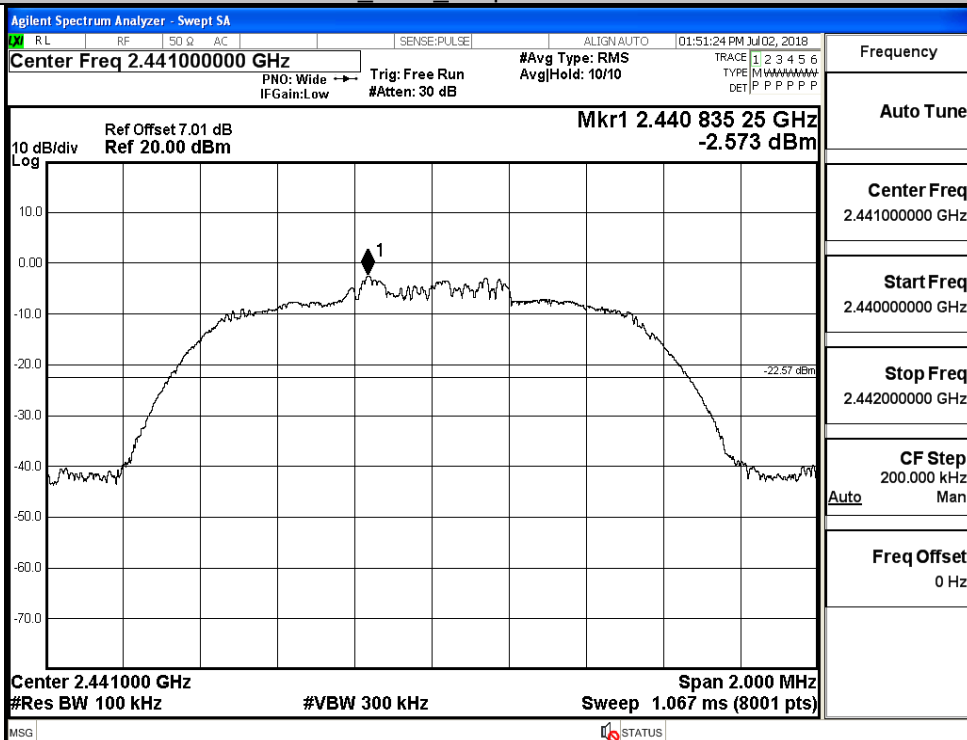


Puw

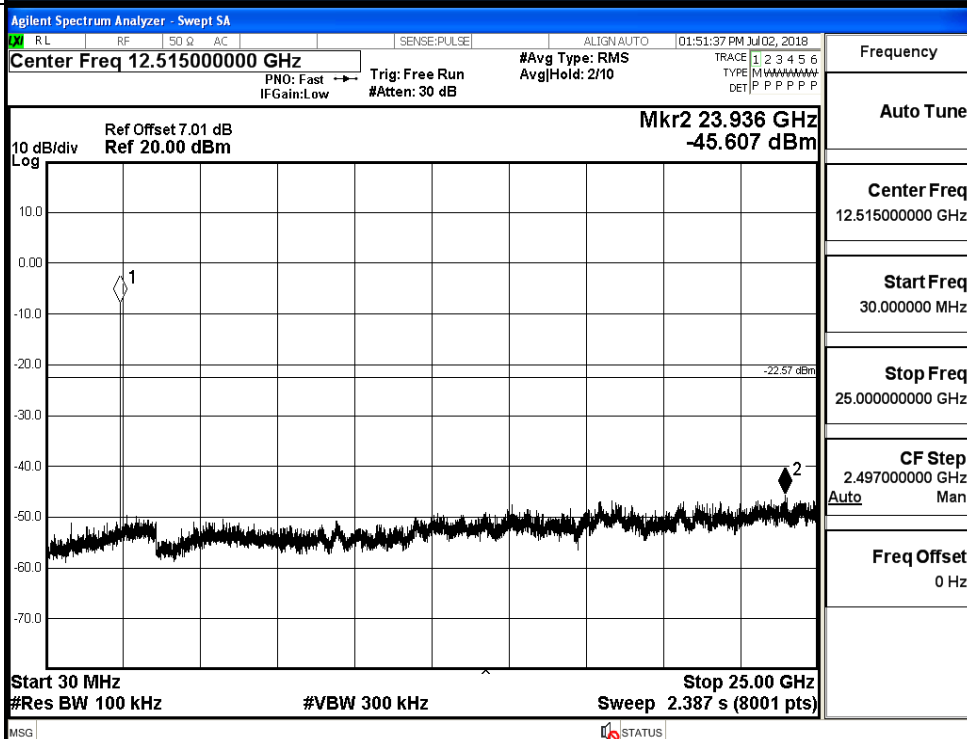


$\pi$ /4DQPSK\_MCH\_Graphs

Pref

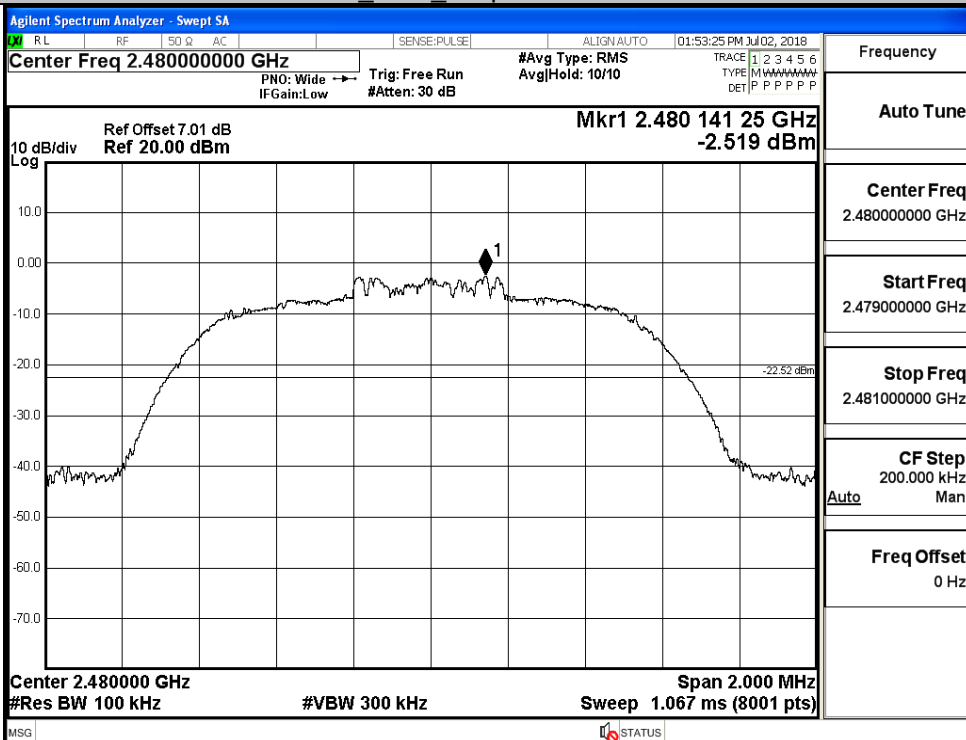


Puw

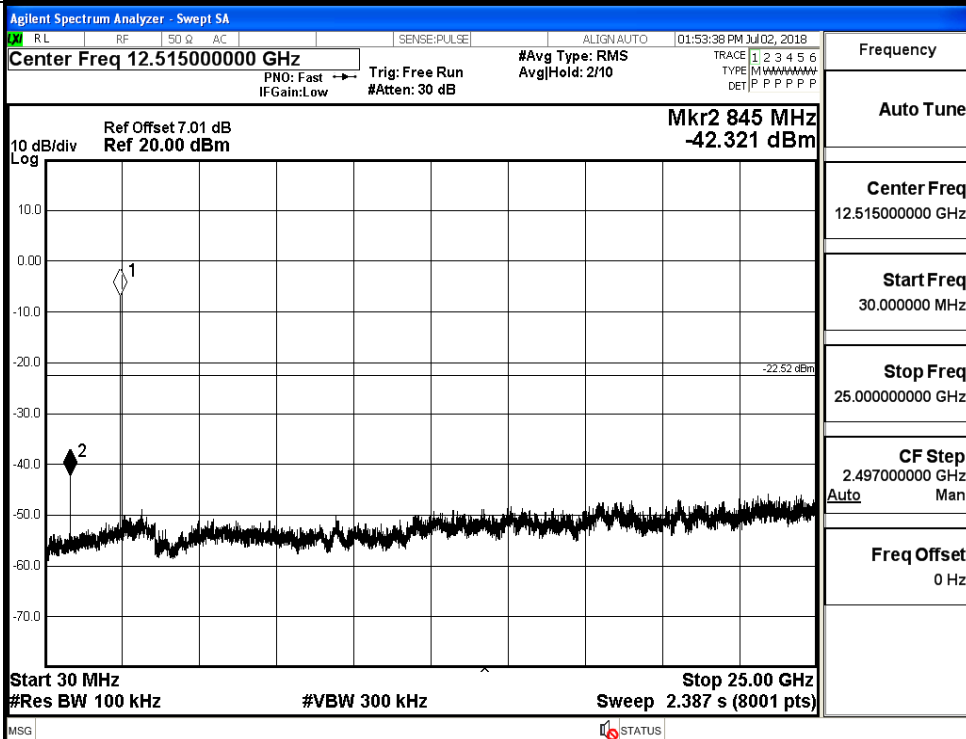


$\pi/4$ DQPSK\_HCH\_Graphs

Pref

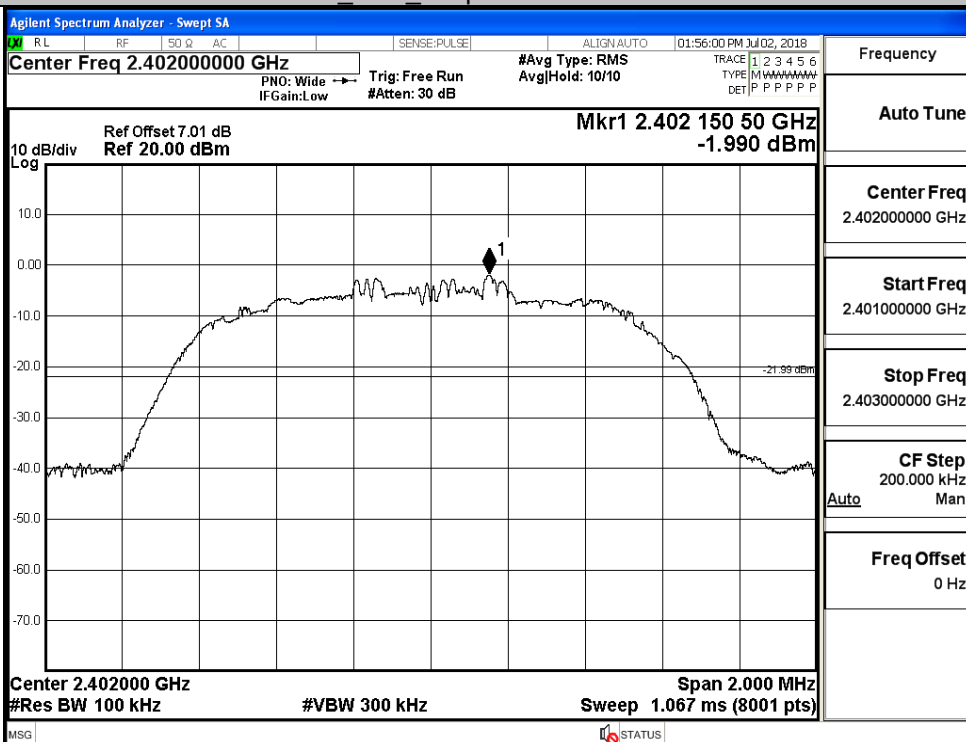


Puw

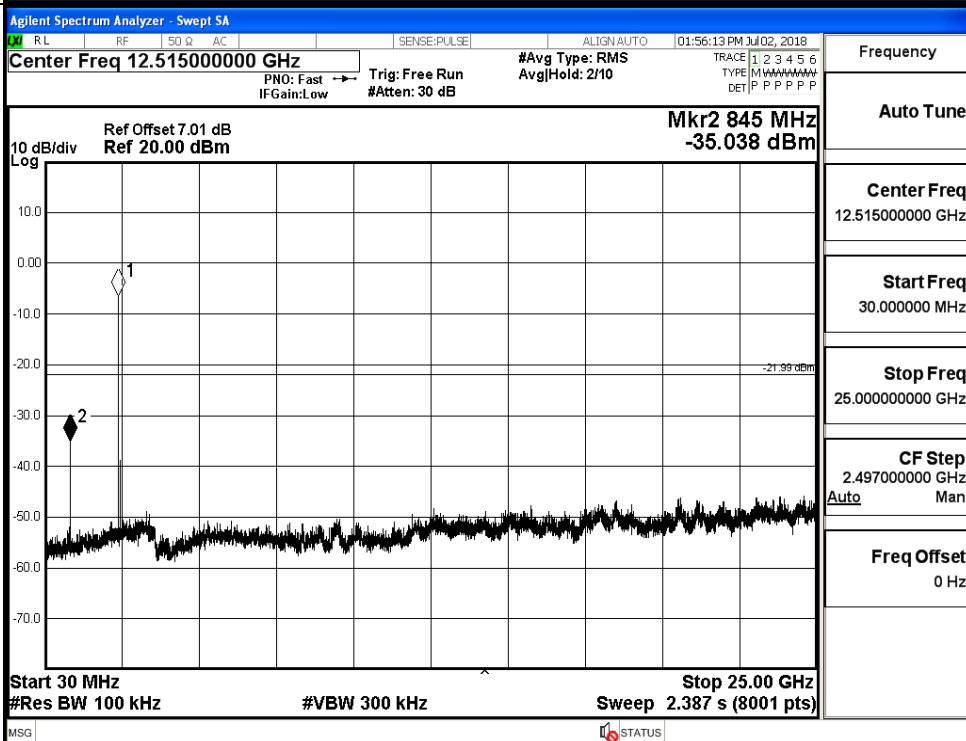


# 8DPSK\_LCH\_Graphs

Pref

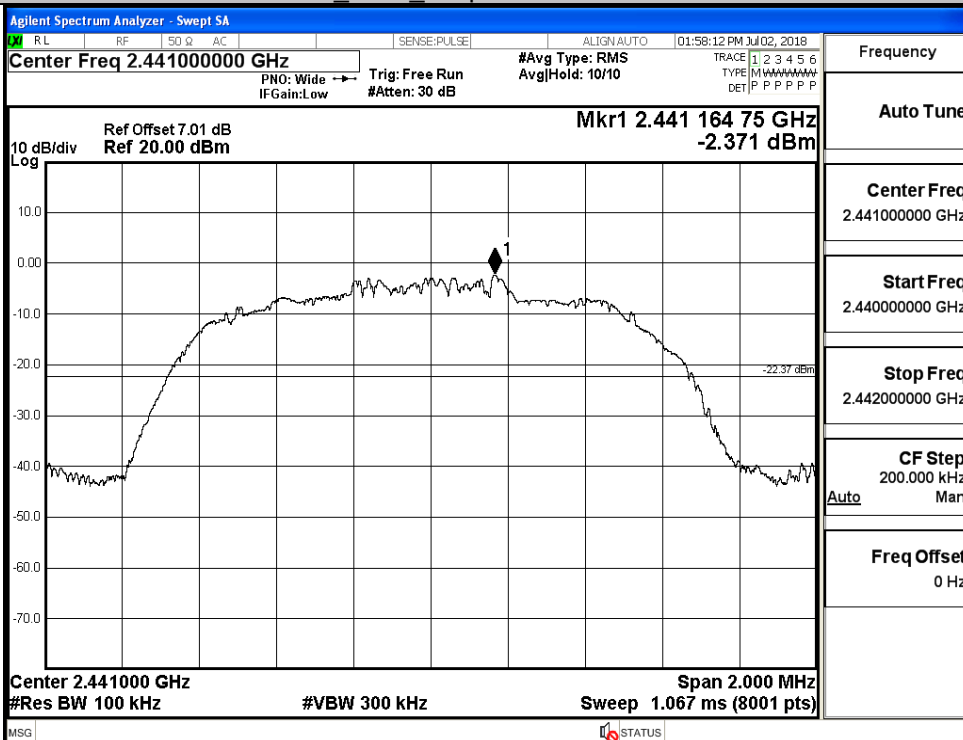


Puw

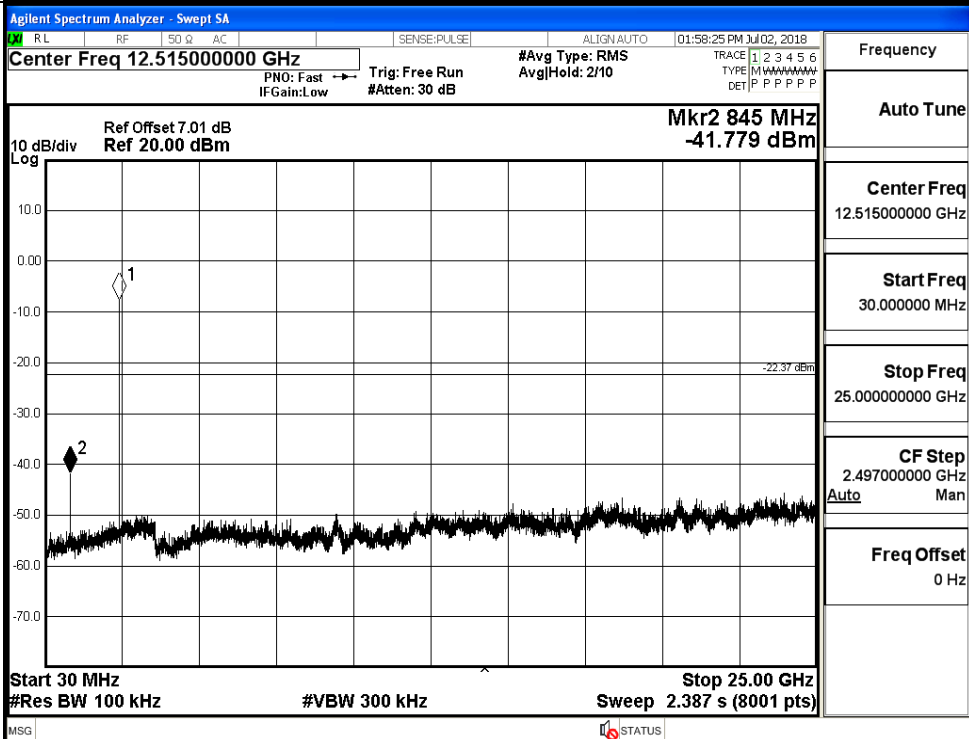


# 8DPSK\_MCH\_Graphs

Pref

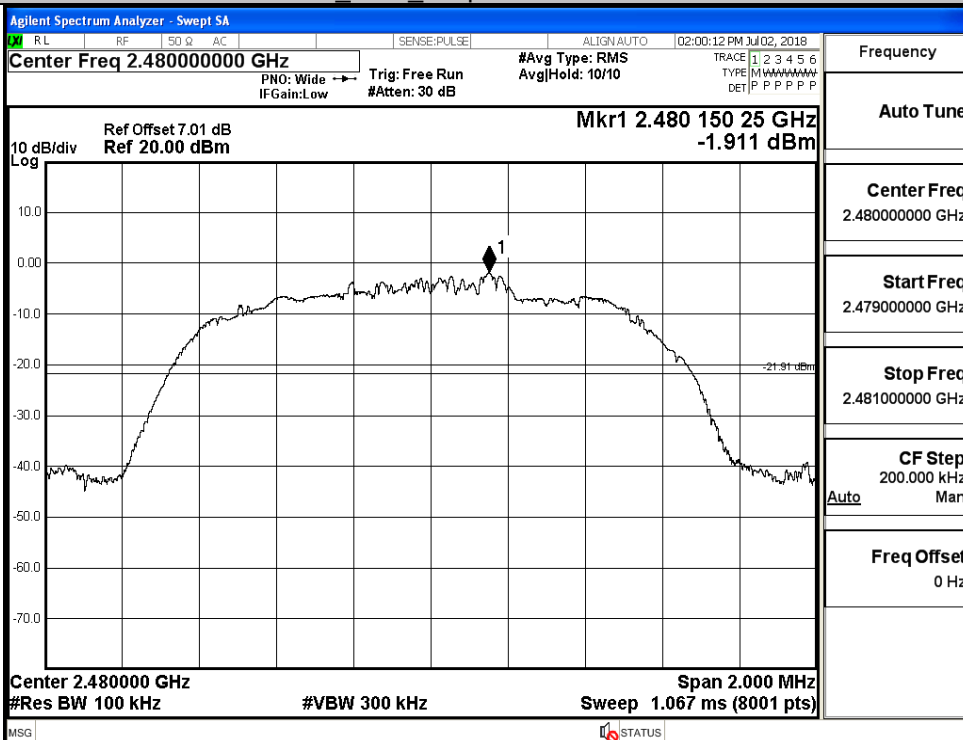


Puw

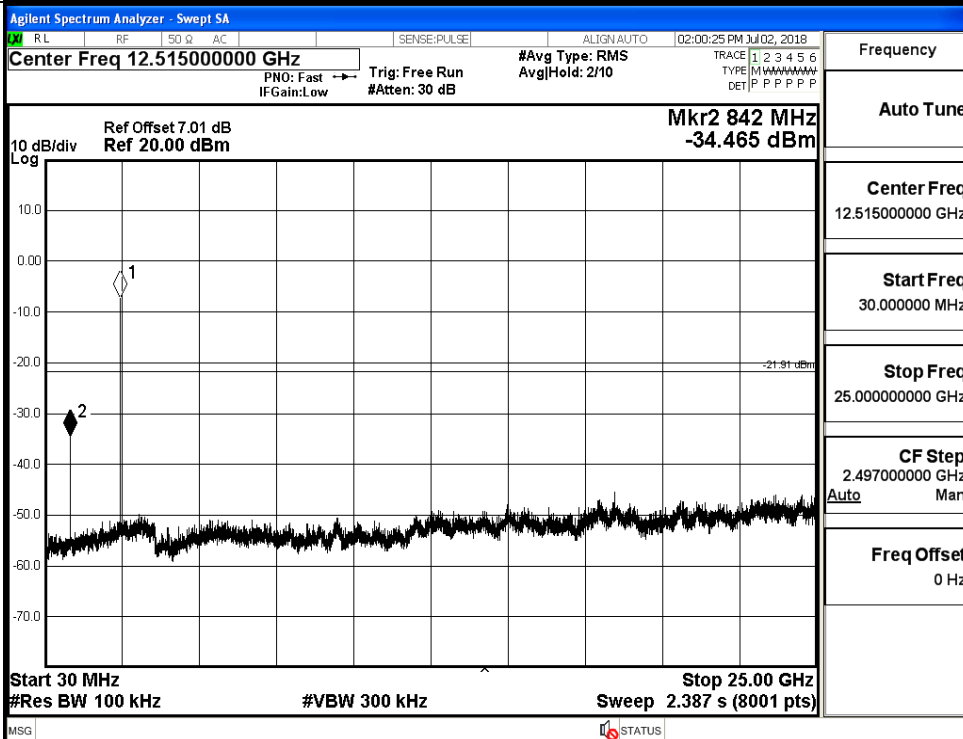


# 8DPSK\_HCH\_Graphs

Pref



Puw

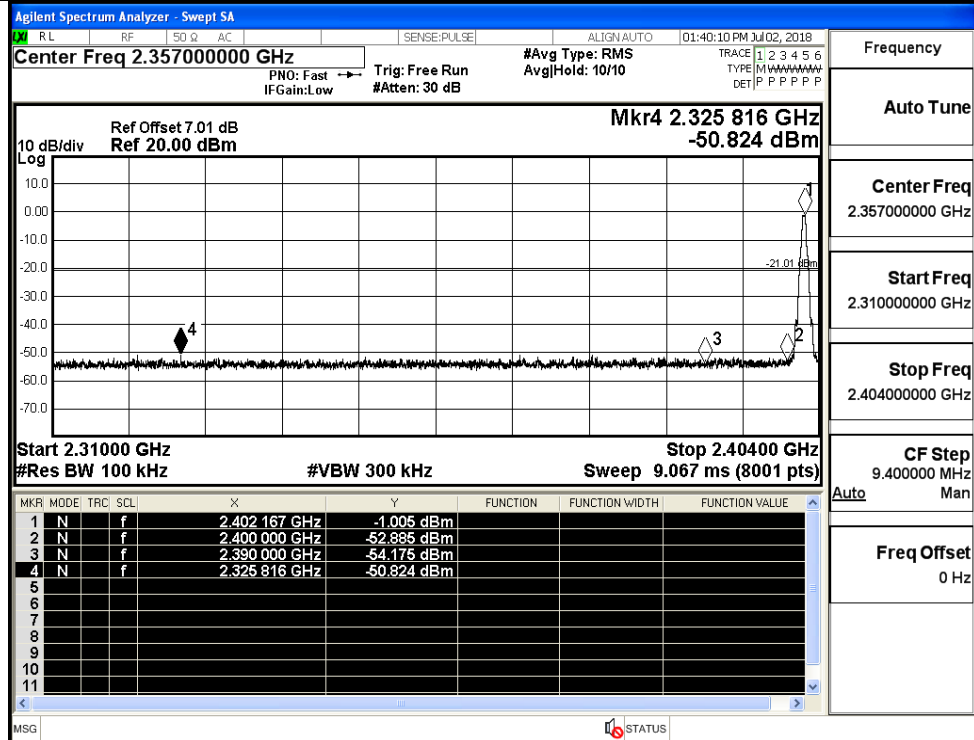


## A.7 Band-edge for RF Conducted Emissions

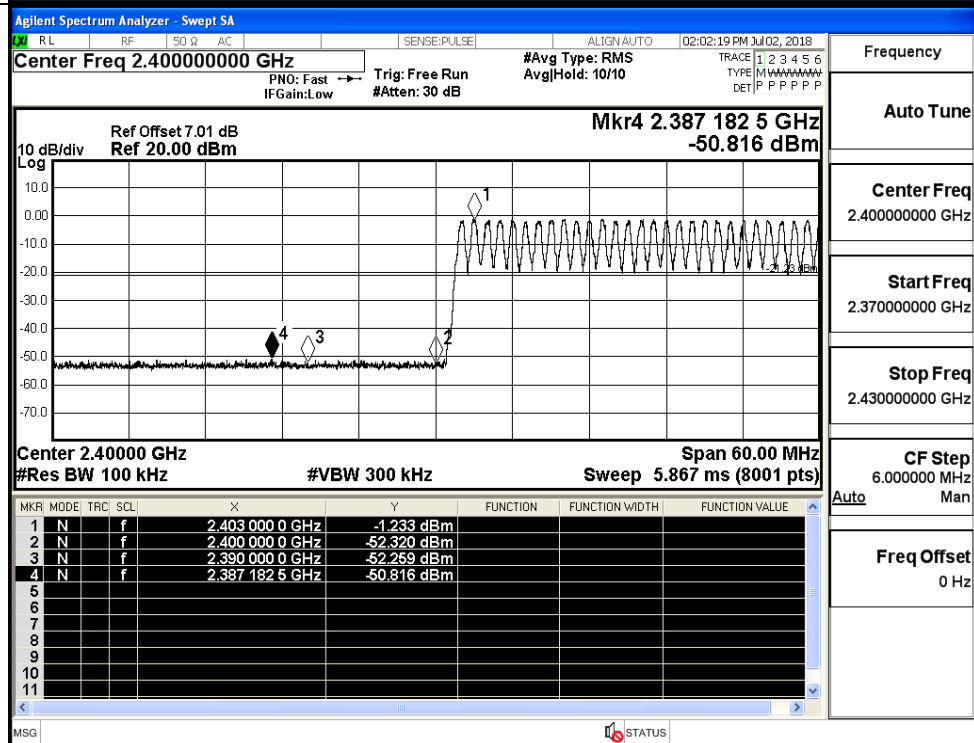
| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | -1.005              | Off               | -50.824                  | -21.01      | PASS    |
|               |         |                         | -1.233              | On                | -50.816                  | -21.23      | PASS    |
|               | HCH     | 2480                    | -1.467              | Off               | -50.364                  | -21.47      | PASS    |
|               |         |                         | -1.148              | On                | -50.404                  | -21.15      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | -2.741              | Off               | -51.087                  | -22.74      | PASS    |
|               |         |                         | -1.831              | On                | -50.317                  | -21.83      | PASS    |
|               | HCH     | 2480                    | -2.251              | Off               | -50.860                  | -22.25      | PASS    |
|               |         |                         | -1.831              | On                | -50.356                  | -21.83      | PASS    |
| 8DPSK         | LCH     | 2402                    | -2.431              | Off               | -51.118                  | -22.43      | PASS    |
|               |         |                         | -2.012              | On                | -50.055                  | -22.01      | PASS    |
|               | HCH     | 2480                    | -2.005              | Off               | -50.390                  | -22.01      | PASS    |
|               |         |                         | -2.039              | On                | -48.630                  | -22.04      | PASS    |

## Test Graphs

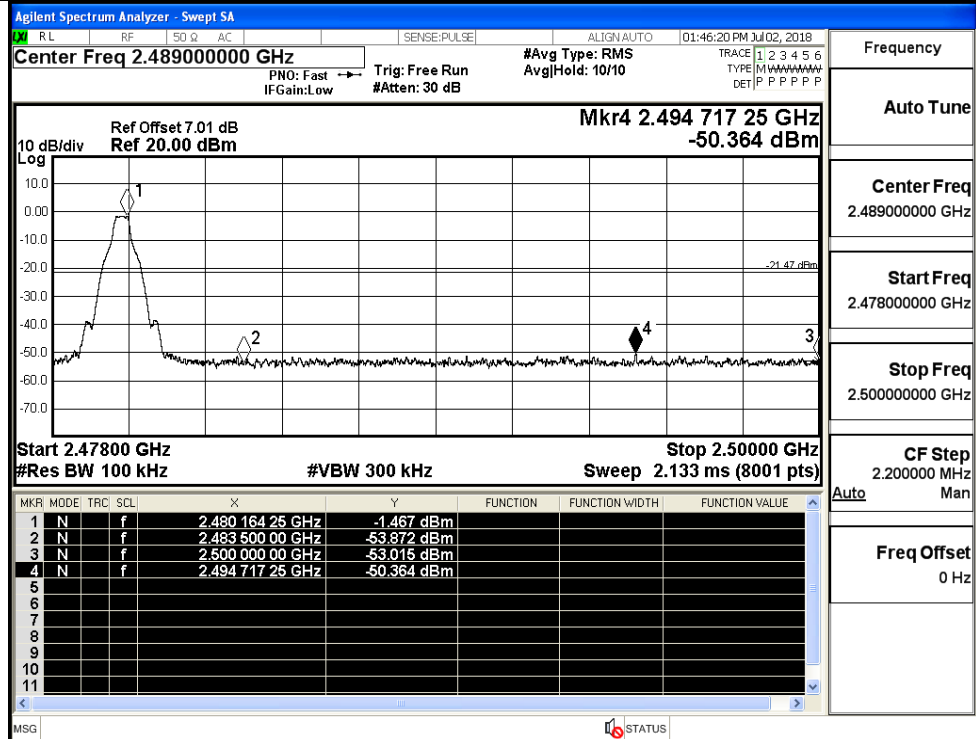
GFSK/LCH/No Hop



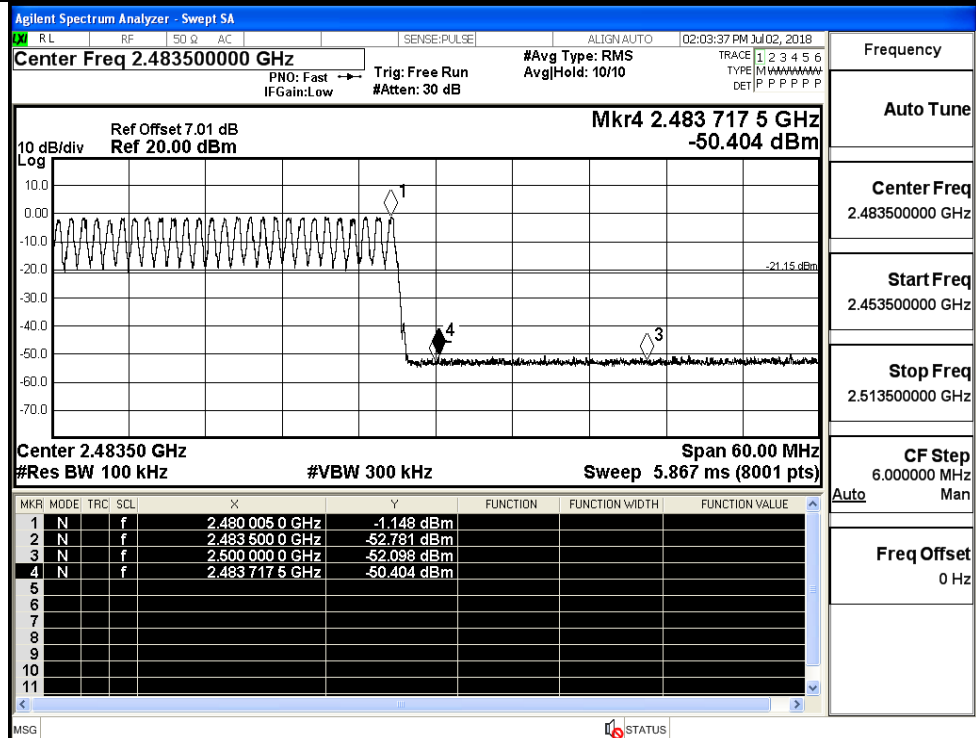
GFSK/LCH/Hop



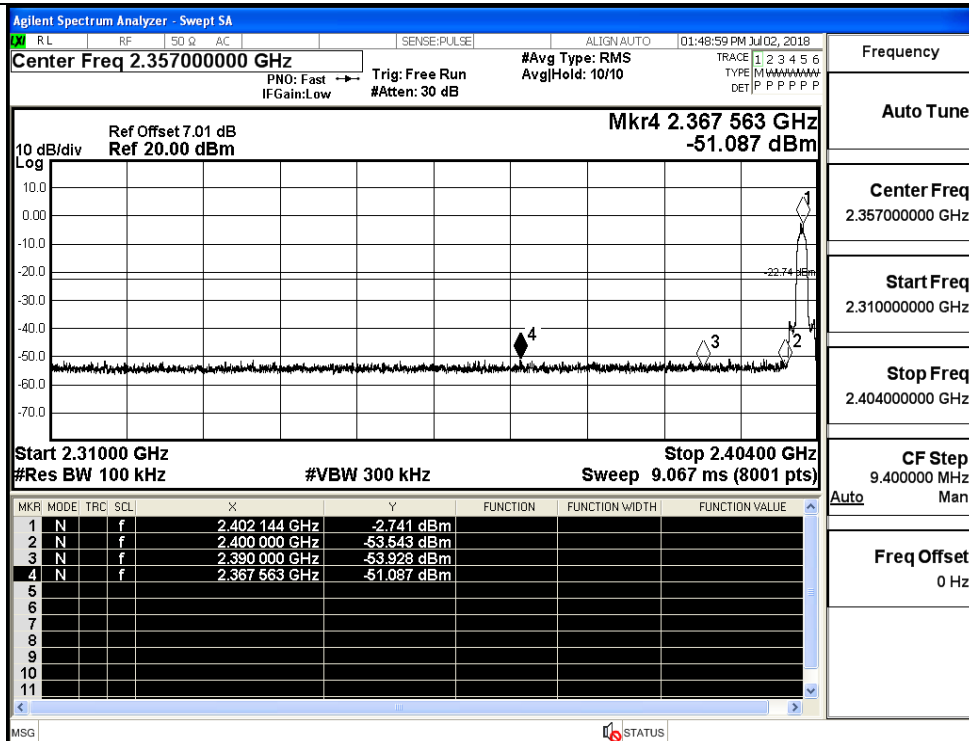
GFSK/HCH/No Hop



GFSK/HCH/Hop



$\pi/4$ DQPSK/LCH/No  
Hop



Frequency

Auto Tune

Center Freq  
2.357000000 GHz

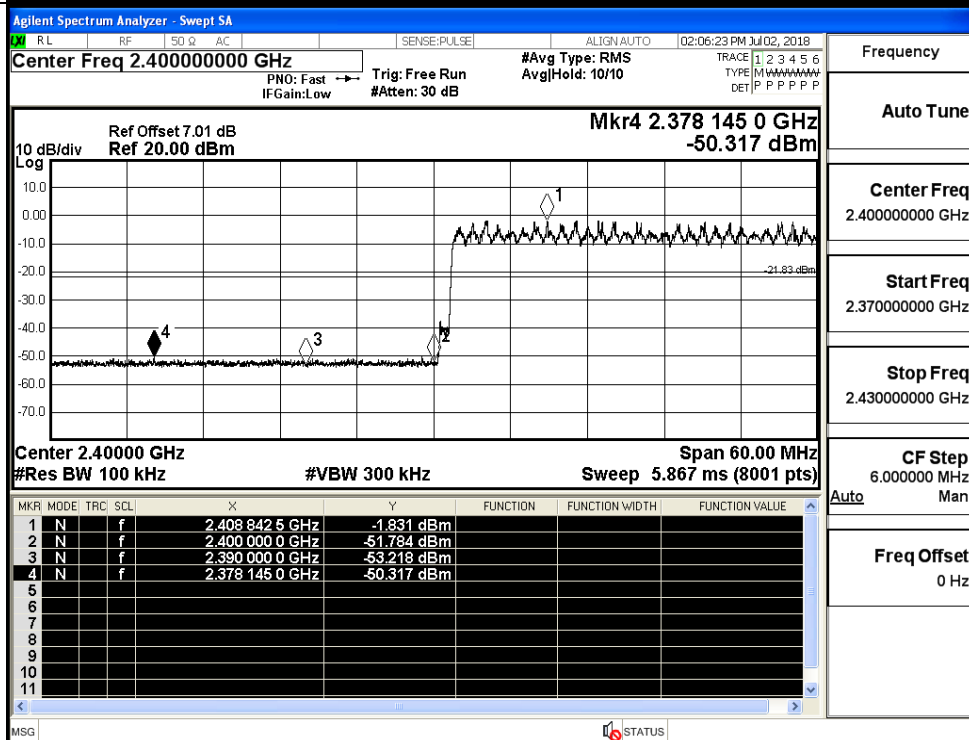
Start Freq  
2.310000000 GHz

Stop Freq  
2.404000000 GHz

CF Step  
9.400000 MHz  
Auto Man

Freq Offset  
0 Hz

$\pi/4$ DQPSK/LCH/Hop



Frequency

Auto Tune

Center Freq  
2.400000000 GHz

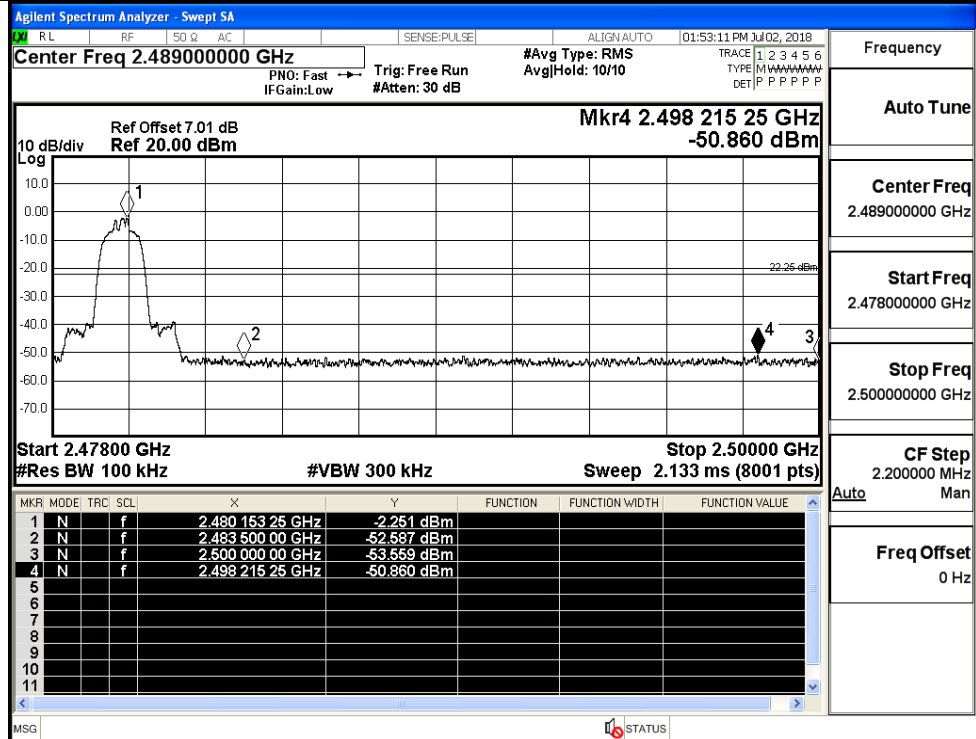
Start Freq  
2.370000000 GHz

Stop Freq  
2.430000000 GHz

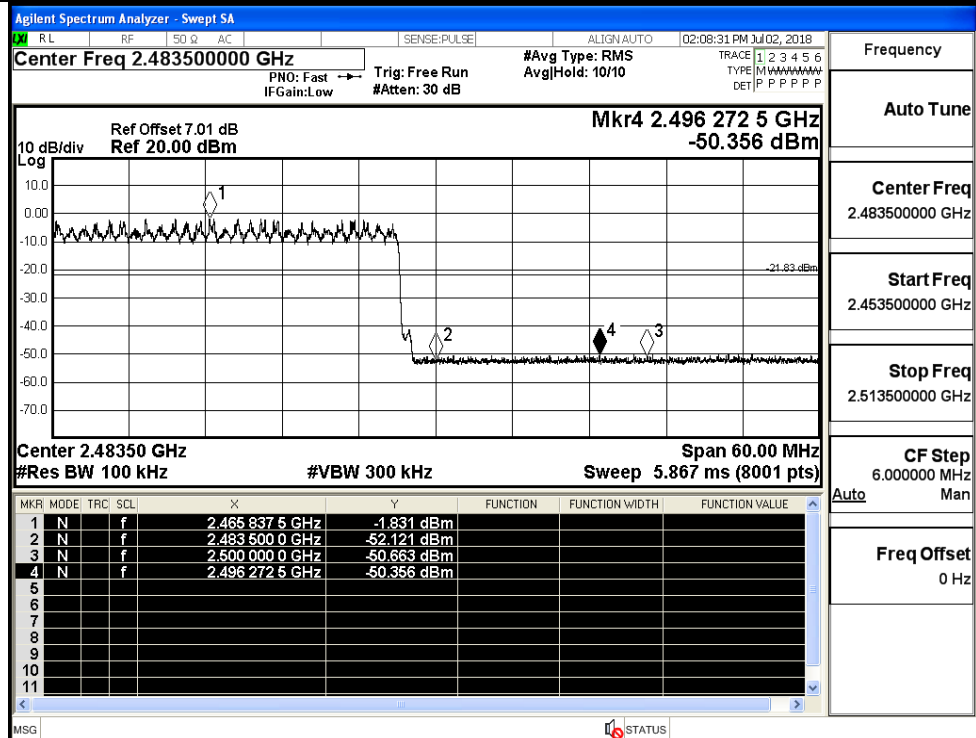
CF Step  
6.000000 MHz  
Auto Man

Freq Offset  
0 Hz

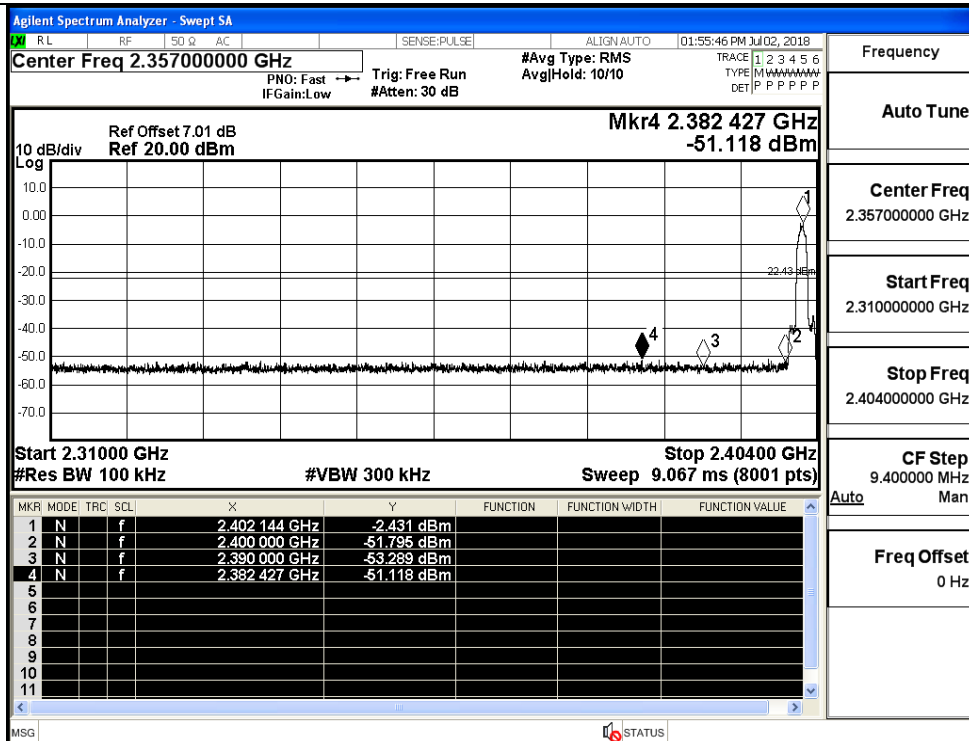
$\pi/4$ DQPSK/HCH/No  
Hop



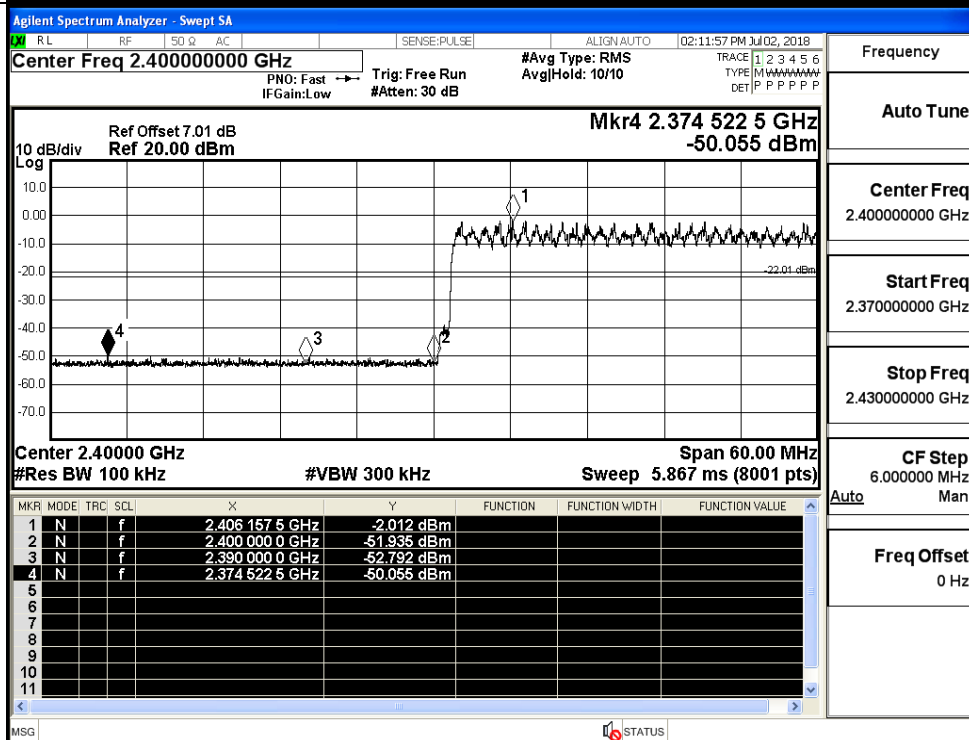
$\pi/4$ DQPSK/HCH/Hop



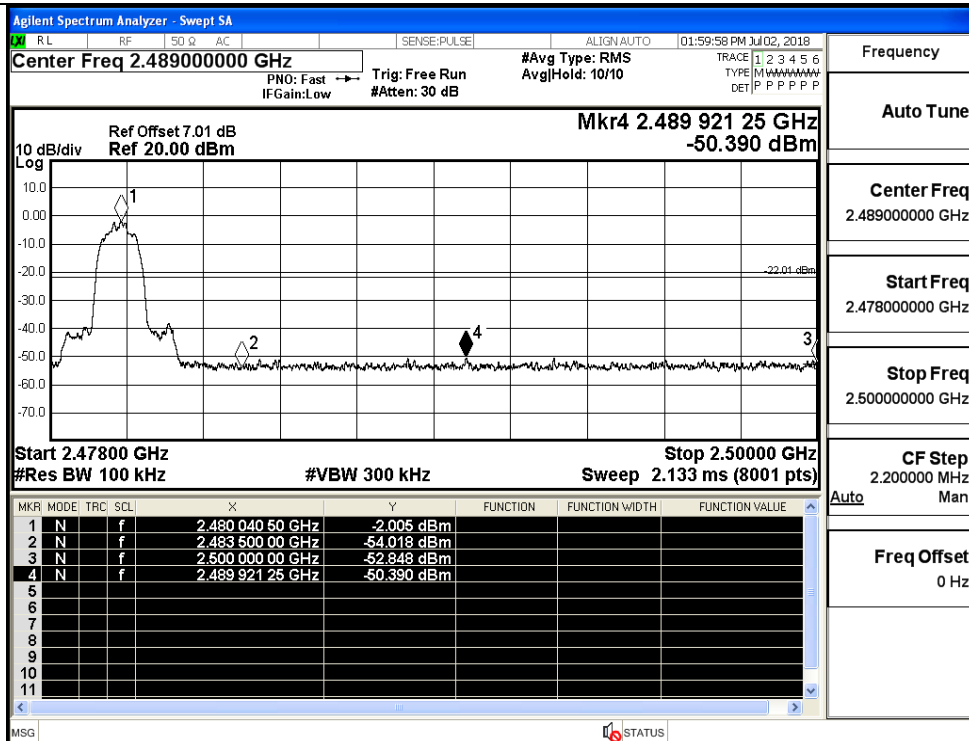
8DPSK/LCH/No Hop



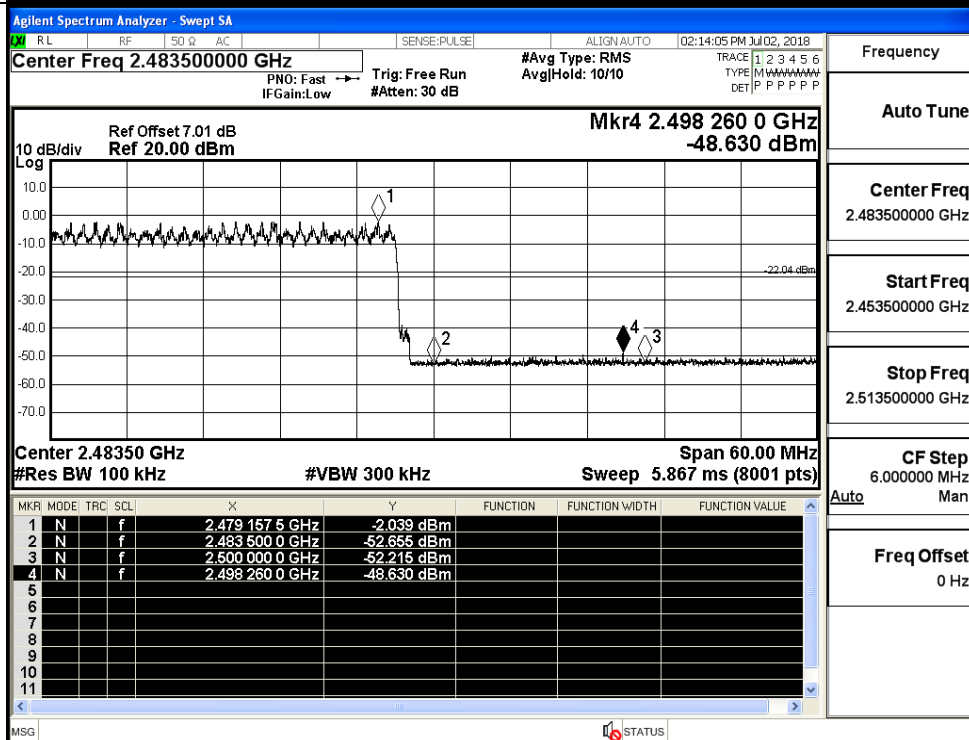
8DPSK/LCH/Hop



8DPSK/HCH/No Hop



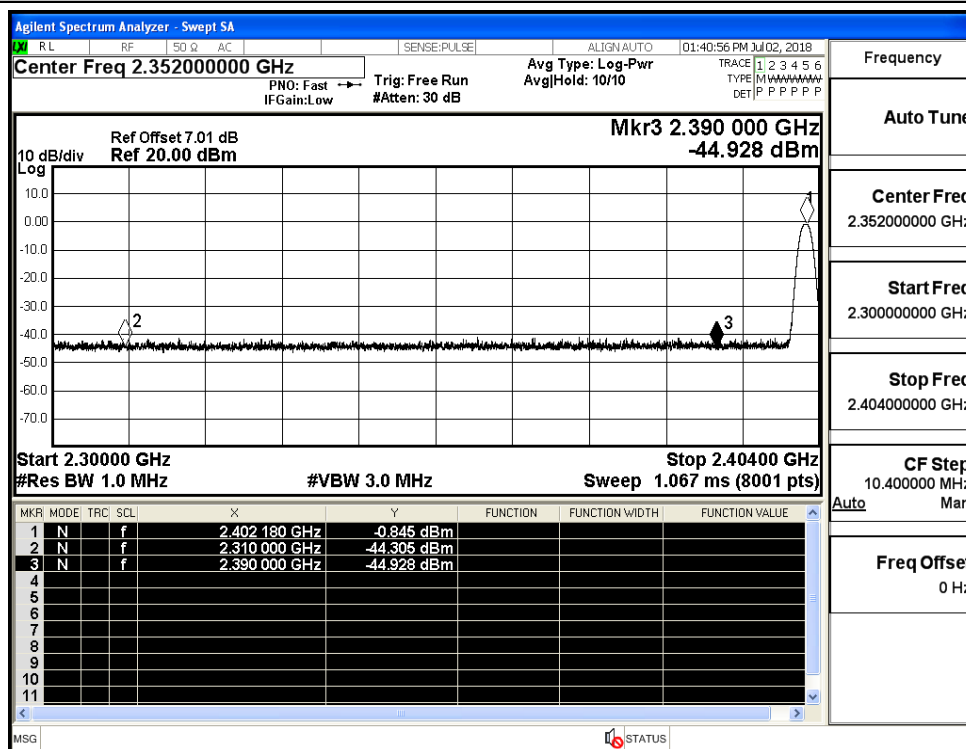
8DPSK/HCH/Hop



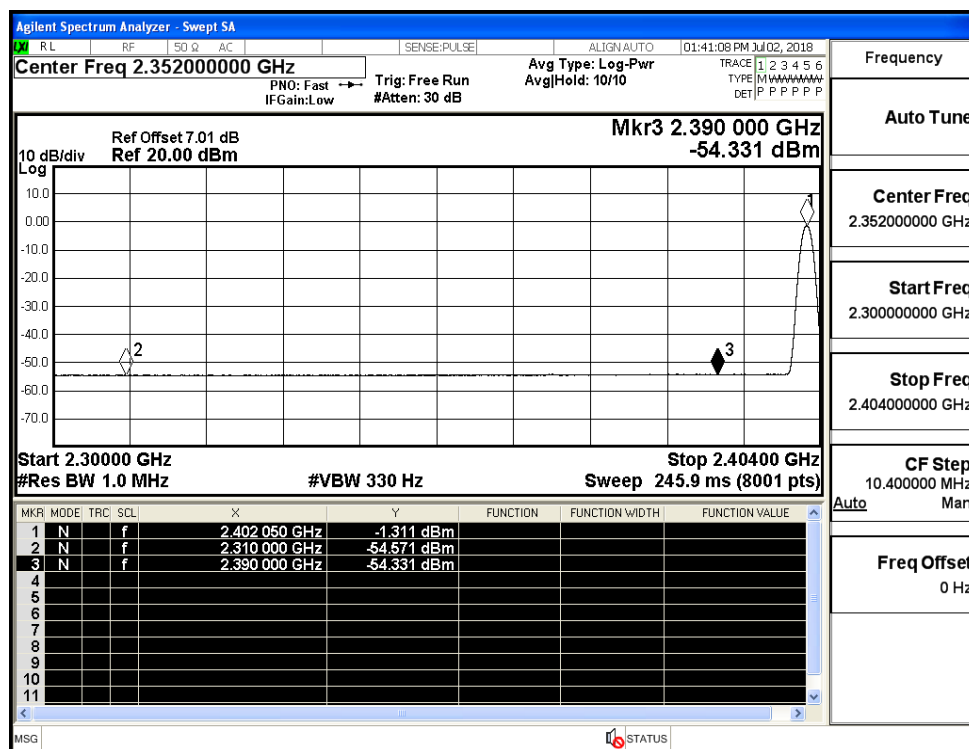
## A.8 Restrict-band band-edge measurements

| Test Mode     | Hopping | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdict |
|---------------|---------|--------|-------------|------|---------------|------------|----------|----------------|---------|
| GFSK          | Off     | 2310.0 | -44.31      | 2.0  | 0             | 52.95      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -54.57      | 2.0  | 0             | 42.69      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -44.93      | 2.0  | 0             | 52.33      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -54.33      | 2.0  | 0             | 42.93      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -44.13      | 2.0  | 0             | 53.13      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -54.13      | 2.0  | 0             | 43.13      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.25      | 2.0  | 0             | 54.00      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -53.95      | 2.0  | 0             | 43.30      | AV       | 54             | PASS    |
| $\pi/4$ DQPSK | Off     | 2310.0 | -43.57      | 2.0  | 0             | 53.69      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -54.69      | 2.0  | 0             | 42.57      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -44.04      | 2.0  | 0             | 53.22      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -54.42      | 2.0  | 0             | 42.84      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -43.25      | 2.0  | 0             | 54.01      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -54.12      | 2.0  | 0             | 43.14      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.53      | 2.0  | 0             | 53.73      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -53.95      | 2.0  | 0             | 43.31      | AV       | 54             | PASS    |
| 8DPSK         | Off     | 2310.0 | -45.16      | 2.0  | 0             | 52.10      | PEAK     | 74             | PASS    |
|               | Off     | 2310.0 | -54.66      | 2.0  | 0             | 42.60      | AV       | 54             | PASS    |
|               | Off     | 2390.0 | -44.18      | 2.0  | 0             | 53.08      | PEAK     | 74             | PASS    |
|               | Off     | 2390.0 | -54.46      | 2.0  | 0             | 42.80      | AV       | 54             | PASS    |
|               | Off     | 2483.5 | -43.61      | 2.0  | 0             | 53.65      | PEAK     | 74             | PASS    |
|               | Off     | 2483.5 | -54.11      | 2.0  | 0             | 43.15      | AV       | 54             | PASS    |
|               | Off     | 2500.0 | -43.78      | 2.0  | 0             | 53.48      | PEAK     | 74             | PASS    |
|               | Off     | 2500.0 | -53.98      | 2.0  | 0             | 43.28      | AV       | 54             | PASS    |

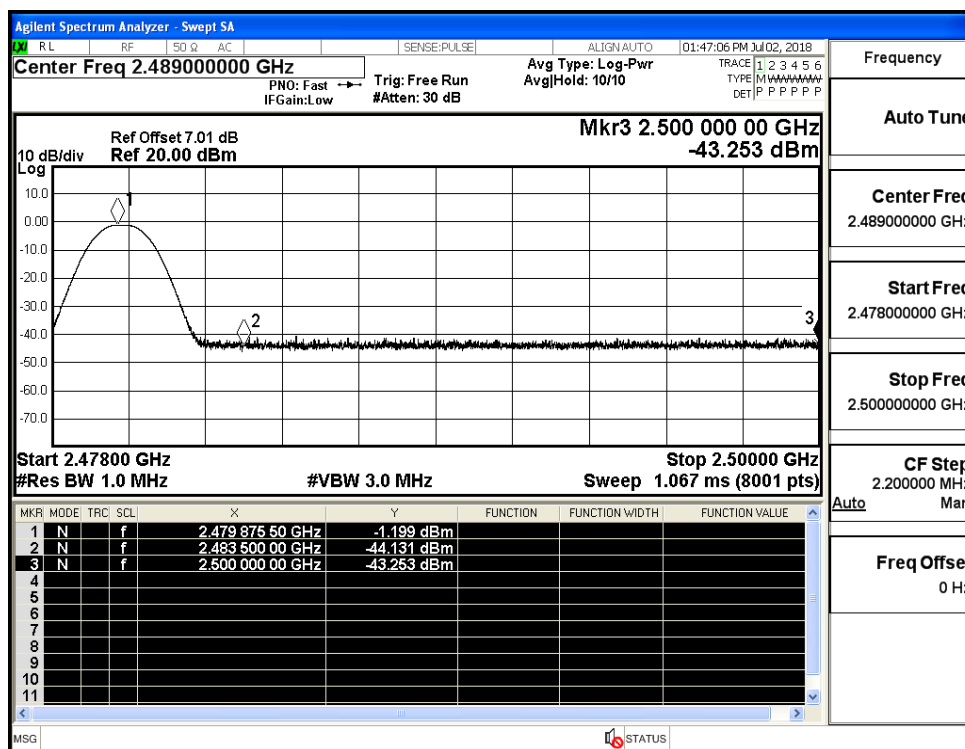
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (Low Channel)



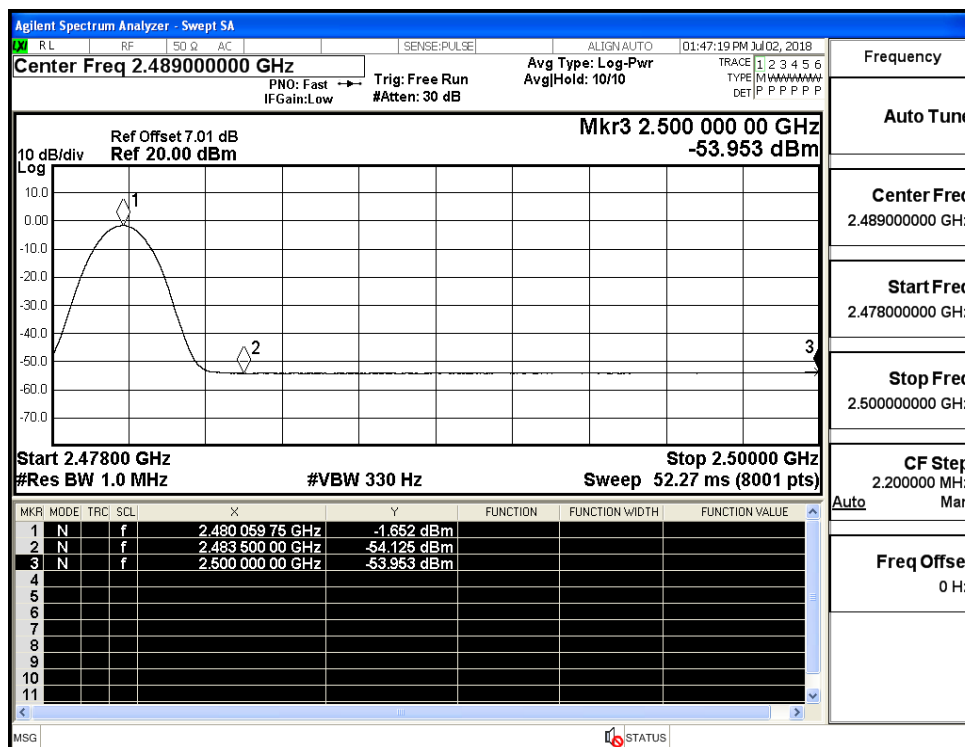
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (Low Channel)

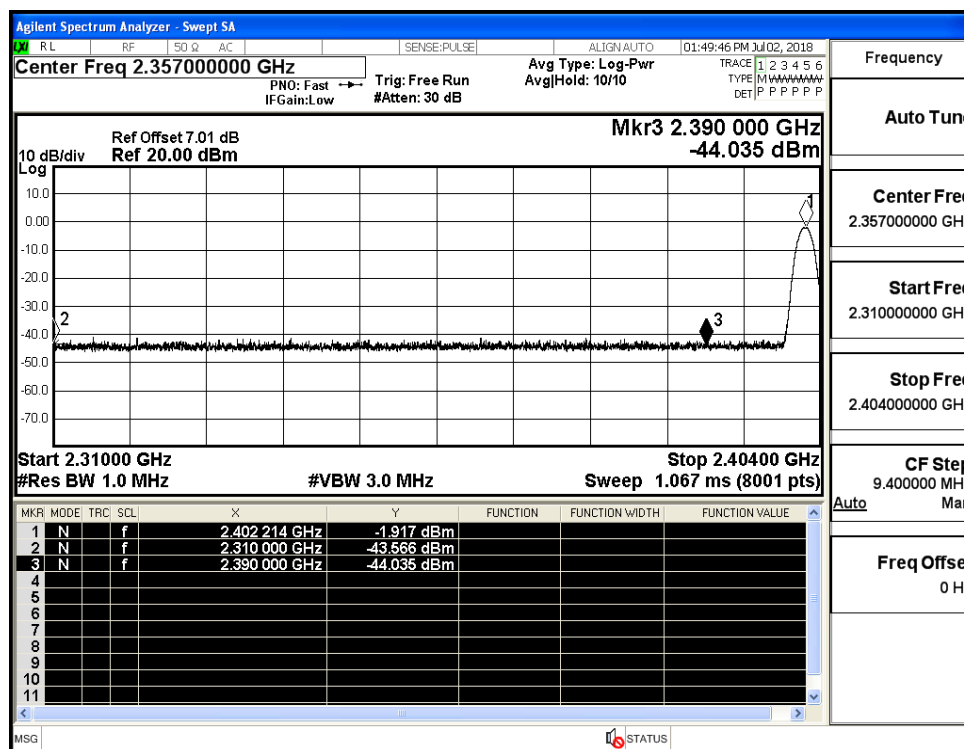
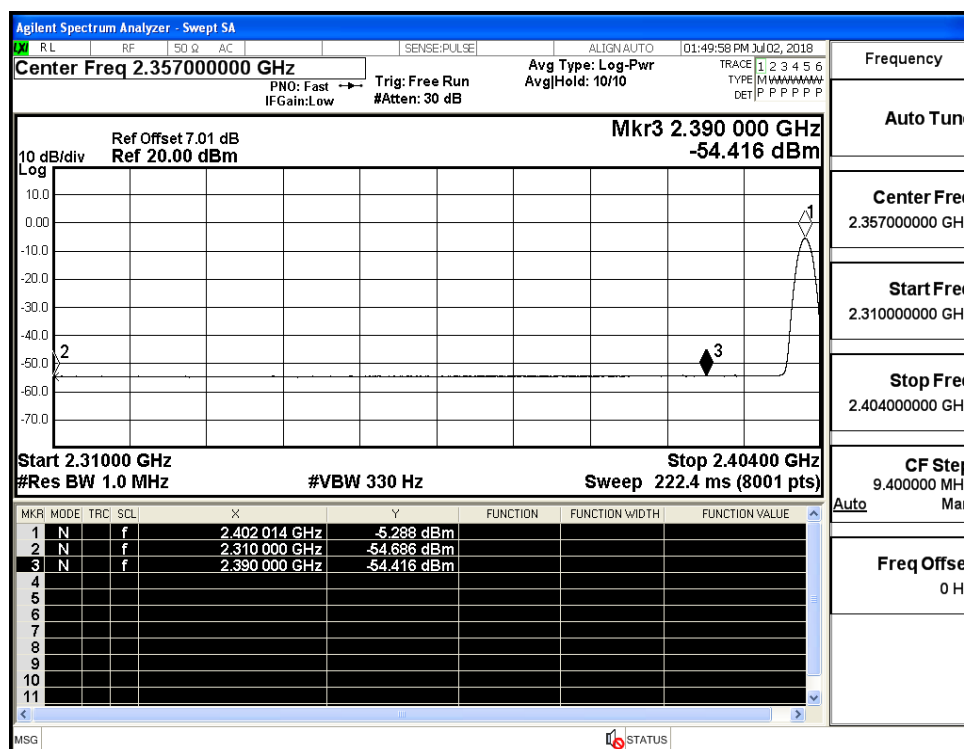


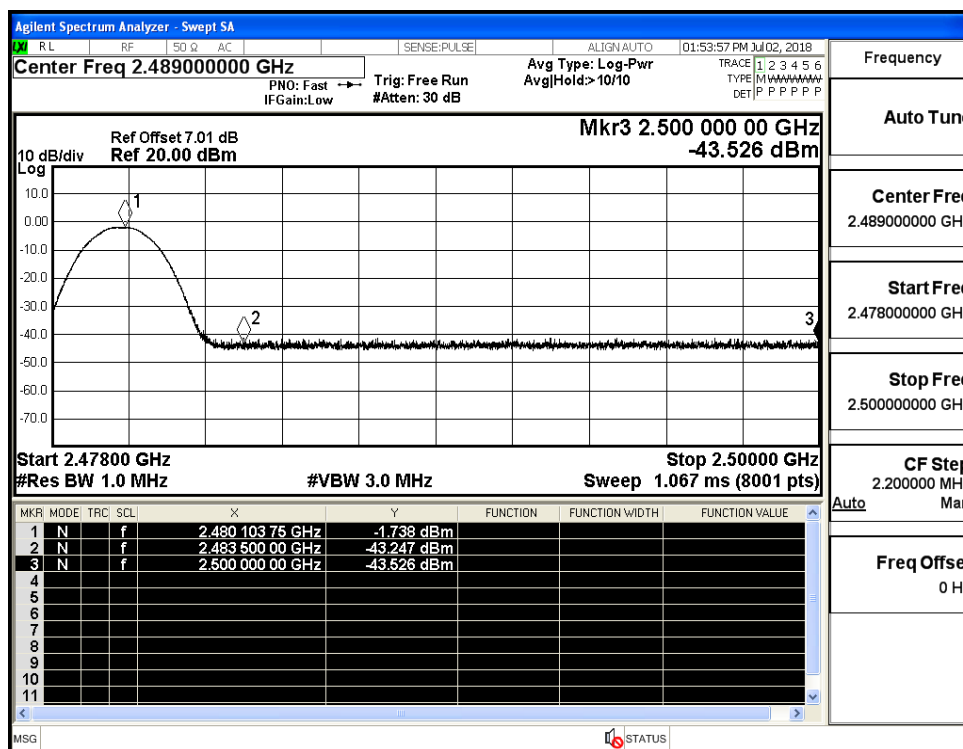
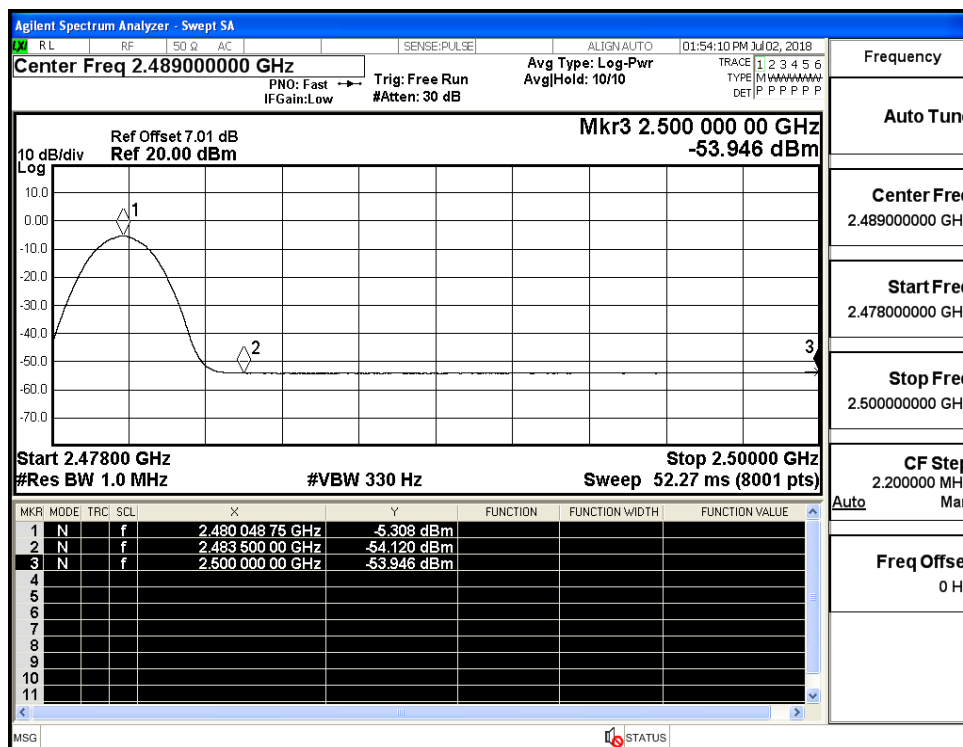
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_PEAK (High Channel)



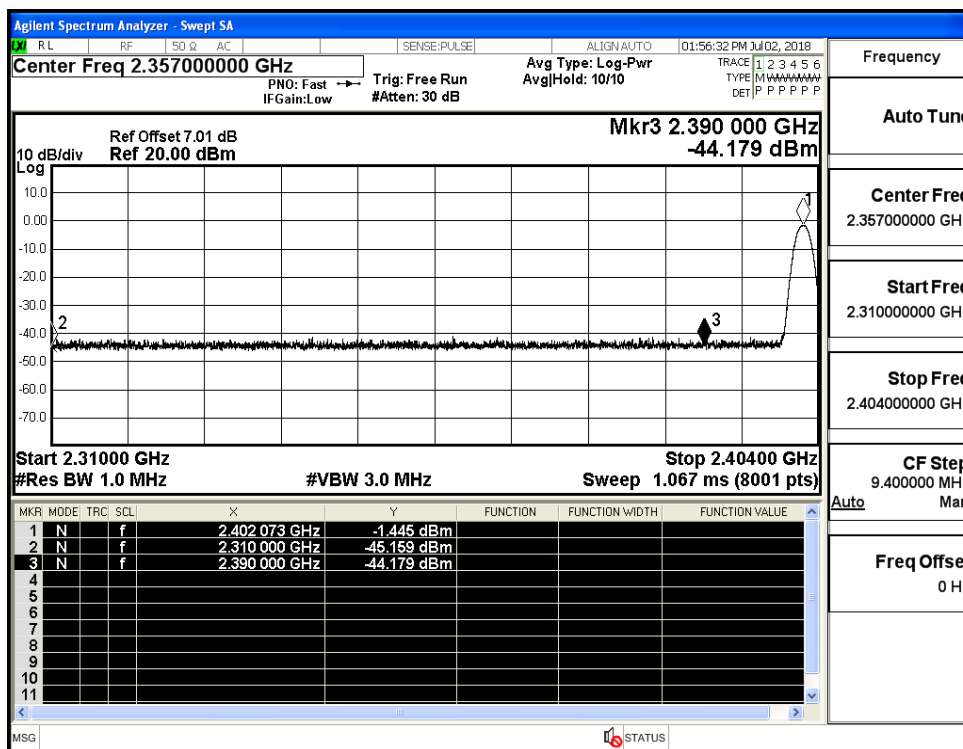
## Restrict-band band-edge measurements\_Hopping Off\_GFSK\_Average (High Channel)



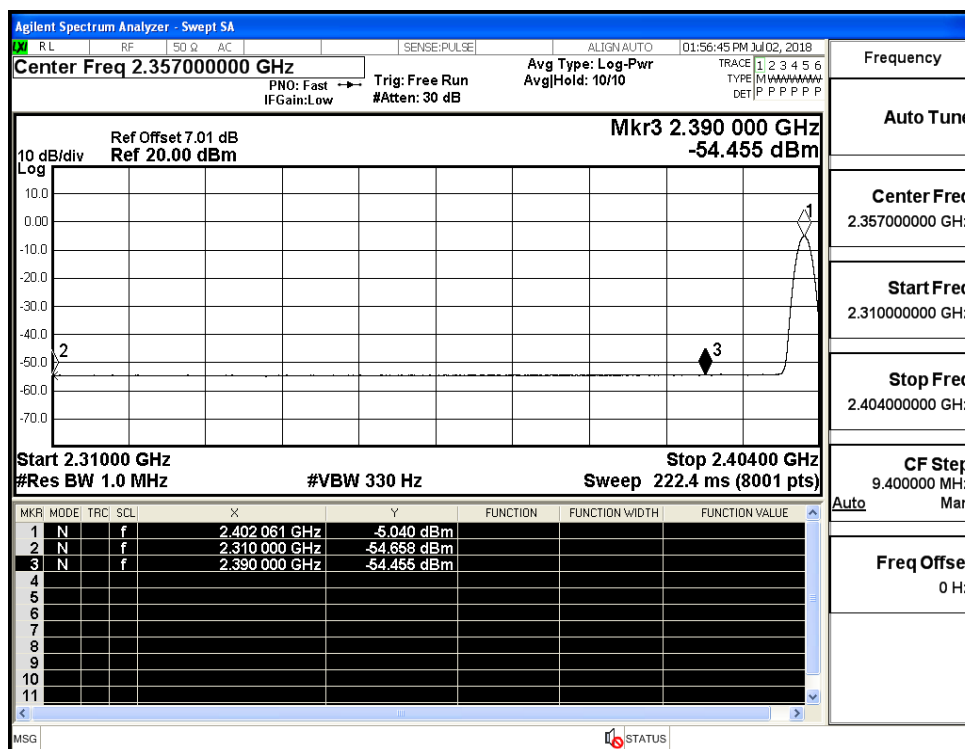
Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (Low Channel)Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (Low Channel)

Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_PEAK (High Channel)Restrict-band band-edge measurements\_Hopping Off  $\pi/4$ -DQPSK\_Average (High Channel)

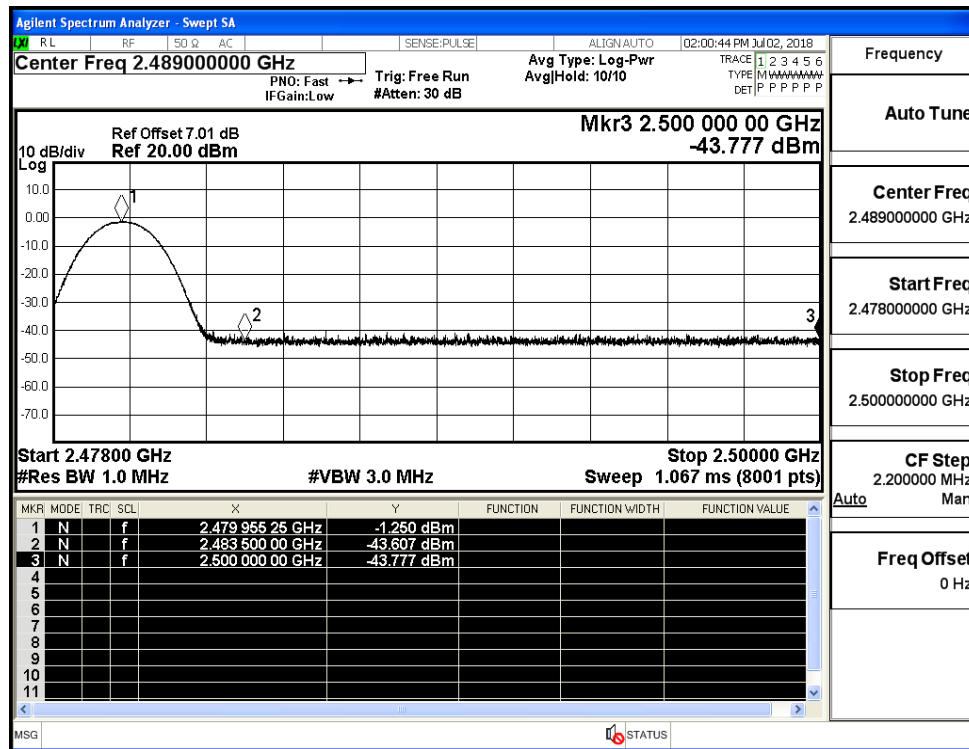
## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (Low Channel)



## Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (Low Channel)



# Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_PEAK (High Channel)



# Restrict-band band-edge measurements\_Hopping Off\_8DPSK\_Average (High Channel)

